DOCUMENT RESUME

ED 159 803 EA 010 913

AUTHOR Hennigan, Robert
TITLE An Analysis of the Pupil Transportation Program in New York State. Occasional Paper #33. First Draft.
PUB DATE Jun 78
NOTE 121p.; Best copy available

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS Correlation; *Cost Effectiveness; *Educational Research; Efficiency; Elementary Secondary Education; Equal Education; Expenditure Per Student; Handicapped Students; Multiple Regression Analysis; *Program Budgeting; *School Buses; State Aid; State Legislation; *Student Transportation; Tables (Data); Tax Rates; Traffic Safety
IDENTIFIERS *New York

ABSTRACT

The intent of the research reported in this paper was to substantiate a formula that would remedy the defects inherent in the present New York State transportation aid formula that reimburses districts 90 percent of approved costs. Thirty-six variables were either recorded or calculated for the 700 school districts in the state. Correlation matrices were produced using all the variables to identify those variables that were strongly related to expenditures. Multiple regression analysis equations were calculated using pupil transportation expenditure variables as the dependent variable and various variables highly related to transportation expenditures as the independent variables. In chapter 2, information concerning the scope of the pupil transportation system and its characteristics is presented followed by a discussion in chapter 3 of the administration of the transportation aid process by the State Education Department. Chapter 4 is concerned with the operation of the system with regard to safety and efficiency. Chapter 5 contains an evaluation of the current state aid formula, and in chapter 6 a proposal for a new formula is presented. (Author/MLF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED159803

FIRST DRAFT

OCCASIONAL PAPER #33

AN ANALYSIS OF THE PUPIL TRANSPORTATION PROGRAM IN NEW YORK STATE

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ROBERT HENNIGAN

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

NY State Educ. Dept

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

BEST COPY AVAILABLE

Public Law 93-380
Section 842 Staff
Orlando F. Furno, Director
James M. Gaughan
Robert Hennigan

JUNE 1978

EA 010 913

FIRST DRAFT

CHAPTER 1

THE RESEARCH METHODOLOGY AND A SUMMARY OF FINDINGS AND RECOMMENDATIONS

INTRODUCTION

The New York State pupil transportation system is quite large. In 1975-76, almost 2,145,200 pupils were transported to public and nonpublic schools in New York State at a cost of $364,413,886. State aid for the 1975-76 school year (paid out in 1976-77) amounted to $254,192,760, or 70 percent of total costs. New York transports more students involving greater total costs and State aid than any other State.

As indicated in Table 1.1, since 1940 the pupil transportation program has grown considerably in terms of pupils transported, expenditures and aid. The rate of growth was particularly high between 1950 and 1960.

Pupil transportation is a very important part of the educational system. It is important in insuring that every child has equal access to an education. Without the transportation of pupils, the goal of equality of educational opportunity would be exceedingly difficult to attain.

TABLE 1.1

SELECTED TRANSPORTATION VARIABLES
FOR NEW YORK STATE 1940-1975

SCHOOL YEAR ENDING (1)	TOTAL PUPILS TRANSPORTED (2)	TOTAL TRANSPORTATION EXPENDITURES (MILLIONS OF DOLLARS) (3)	TOTAL TRANSPORTATION AID (MILLIONS OF DOLLARS) (4)
1940	189,032	7.0	2.4
1950	NA	13.7	7.1
1960	NA	NA	37.5
1965	1,722,015	103.8	72.8
1970	2,125,556	195.0	133.6
1975	2,189,484	321.2	222.5

Note: Aid for the years indicated is paid out the following year. For example, aid for the school year ending 1940 is paid out in 1941. NA indicates that the information is not available

PURPOSE OF THE STUDY

The current New York State transportation aid formula (Aid - .90 x Approved Costs) is in dire need of reform. Basing state aid on approved costs requires a great deal of complicated paperwork. Reimbursing districts a flat percentage (90 percent) of approved costs has a disequalizing effect.

The prime aim of this project was to propose a formula which would remedy the defects inherent in the present formula. In addition to the financing of the system, other aspects of the pupil transportation program were studied in order to gain a more comprehensive understanding of the entire system. In Chapter 2 information concerning the scope of

the pupil transportation system and its characteristics is presented. Chapter 3 discusses the administration of the transportation aid process by the State Education Department. Chapter 4 is concerned with the operation of the system with regard to safety and efficiency. Chapter 5 contains an evaluation of the current state aid formula, and in Chapter 6 a proposal for a new formula is presented.

RESEARCH METHODOLOGY

The first step taken in this project was a review of the pupil transportation finance literature form both New York State and other states. This was done in order to compare the different methods presently used to finance pupil transportation. A review of the literature permitted the researchers to gain an understanding of how present pupil transportation formulas evolved in the various states over the years. In addition, this review enabled the researchers to identify factors which have an important bearing on transportation costs.

The next step was the collection and analysis of data for New York State school districts. Based on the results obtained from the analysis, a variety of formulas were developed. These formulas were evaluated according to a set of criteria of this group of formulas one was chosen for further study. Several variations of that formula were proposed and evaluated. One of the variations was chosen as

our proposal for a new transportation aid formula. A detailed analysis of the proposed formula was carried out to determine what effects the formula would have.

Sample Selection

Two groups of school districts were used in this study. All the districts in the State were used in the initial data collection and analysis stage. The State contains over 700 local school districts, of which 700 were used in this study. The districts varied in pupil population from less than 100 pupils to more than one million and in area from less than one square mile to several hundred.

Districts were divided into four groups: (1) Districts where all pupils were transported on district owned buses, (2) Districts where more than one half of the pupils were transported on district owned buses, (3) Districts which transported all their pupils on contractor buses, and (4) Districts which transported more than one half of their pupils on contractor buses. Various comparisons were made between these groups.

The second group of school districts used in this study was a sample consisting of the Big 5 districts (New York City, Yonkers, Buffalo, Rochester and Syracuse) and 70 randomly selected districts. This sample was used to make aid projections for the alternative formulas investigated in the course of this study. In doing the analysis of the proposed formula, all 700 districts were used.

Data Collection
Transportation Related Variables

Data were collected on each of the 700 school districts for the 1975-76 school year.

The following variables were either recorded or calculated for the 700 school districts:

Expenditure and Aid Variables

(1) Total Transportation Expenditure

(2) Total Contract Transportation Expenditure

(3) Total District Owned Transportation Expenditure

(4) Total Transportation Expenditure Adjusted for Fringe Benefits

(5) Total Approved Transportation Expenditure

(6) Approved Contract Transportation Expenditure

(7) Approved District Owned Transportation Expenditure

(8) Total Transportation Expenditure Per Pupil Transported

(9) Total Approved Transportation Expenditure Per Pupil Transported

(10) Total Aid

(11) Total Aid Per Pupil Transported

Sparsity Variables

(1) Total Pupils Enrolled Per Square Mile

(2) Total Pupil Transported Per Square Mile

Pupils Transported Variables

(1) Total Pupils Transported

(2) Total Public School Pupils Transported

(3) Total Nonpublic School Pupils Transported

(4) Total Allowed Pupil Transported

(5) Total Nonallowed Pupils Transported

(6) Total Handicapped Pupils Transported

(7) Total Pupils Transported on District Owned Buses

(8) Total Pupils Transported on Contractor Buses

School District Characteristics

(1) Location -- Upstate, Downstate

(2) Type -- Urban, Suburba, Rural

(3) Number of School Buildings in District

(4) State Aid Ratio

(5) 1975 Full Value 1975-76 Pupils (RTAPU 50-50 -- Public and Nonpublic pupils)

(6) Number of Square Miles

(7) Total Miles Driven

(8) Total Miles Driven on Regular Routes

(9) Total Buses Used on Regular Routes

(10) Total Pupil Miles

(11) Total Pupil Miles Per Bus

Proposed Formula Variables

(1) Total Aid Under Proposed Formula

(2) Total Aid Per Weighted Pupil Transported

(3) Tax Rate for Local Share of Transportation Cost

(4) Percent Gain or Loss in Aid Under Proposed Formula

Statistical Analysis in the Research Design

Statistics (mean, median, etc.) were calculated for the variables described in the previous sections for all 700 districts. They were also calculated for the four groups described in the sample selection section.

Correlation matrices were produced using all the variables listed in the previous section in order to identify those variables which were strongly related to expenditures. Multiple regression analysis equations were calculated using pupil transportation expenditure variables as the dependent variable and various variables highly related to transportation expenditures as the independent variables.

In order to evaluate the proposed formula the districts were sequenced in accordance with a criterion variable (i.e. wealth, tax rate for local share of transportation costs). Median and mean values were calculated for various variables for districts in the lowest decile, lowest quartile, highest decile, and highest quartile. Comparisons were then made between the lowest and highest decile districts and between the lowest and highest quartile districts.

RESEARCH FINDINGS

The administrative procedures used by the State Education Department (SED) to determine approved costs are confusing and can encourage the inefficient operation of

district transportation systems. The budgeting procedures used by the SED could be improved. Costs associated with pupil transportation (fringe benefits) are not included under transportation for districts which own their buses. The contract and bus purchase approval procedures used by the SED are effective in meeting their stated objectives. The bus route approval requirement is impossible to carry out given time and manpower limitations.

The safety record of the New York State transportation system is quite good when compared to other states with similar pupil transportation programs. Of all the measures of efficiency discussed, the cost per weighted pupil (regular pupil = 1, nonpublic = 2, handicapped = 6) bus mile is the best. Conditions vary greatly from one district to another around the State, and no one measure of efficiency can take into account all the factors which can affect the efficiency of a district's transportation operation. Based on the data, no conclusion can be made as to whether contract systems are more or less expensive than district owned transportation systems.

The current aid formula favors districts which contract for their transportation services. This is because fringe benefits for districts which own their buses are not included under transportation and are therefore aided under the general operating formula. The rate of reimbursement under that formula is much lower than the 90 percent rate of the transportation formula. The current aid formula is

highly complex, cumbersome to administer, is not based on the true determinants of transportation cost, and is disequalizing in nature. In addition, it provides little incentive for school districts to operate their transportation systems in an efficient and economical manner.

RECOMMENDATIONS

Budgeting procedures utilized by SED need to be reformed. All costs associated with the transportation of pupils to and from school should be recorded under transportation. Presently this is not being done. Fringe benefits for districts which own their buses are not recorded under transportation. Transportation expenditures for other activities such as instruction (ex. field trips) and athletics should be recorded under those activities and not under transportation as is the current practice.

The current transportation aid formula is:

$$\text{Aid} = .90 \times (\text{ATE})$$

where ATE refers to Approved Transportation Expenditures, should be changed. We recommend that it be replaced with a two tier aid ratio formula of the following form:

TOTAL AID = 1st TIER AID + 2nd TIER AID

1st Tier Aid = (.95 x $90 x TAP)

or whichever is less

(.95 x C x TAP)

2nd Tier Aid = (C-$90) x TAP x AR

where TAP refers to total aidable pupils, C refers to Transportation Cost Per Pupil and AR refers to the Aid Ratio

The Aid Ratio = $1 - \left(.4 \frac{wd}{ws}\right)$ where wd refers to district wealth and ws is the state average wealth.

FIRST DRAFT

CHAPTER 2

THE PUPIL TRANSPORTATION PROGRAM IN NEW YORK STATE

HISTORY AND PURPOSE OF PUPIL TRANSPORTATION

The purpose of the pupil transportation system in New York State is to guarantee that every child has equal access to an education. The objectives of the State in the operation of the pupil transportation system are to insure that it be safe, equitable, efficient and economical.

History Of Pupil Transportation in the United States

The transporting of pupils to public schools in the United States arose as an important issue in the mid to latter 19th century. Consolidation of school districts was taking place all over the country. Small rural schools were being closed and this resulted in increased centralization of school districts.

Means had to be found to get the pupils from the small closed schools to the larger schools which remained open. The states entered the picture by granting local districts the authority to raise monies for the purpose of transporting pupils. Robert Neidich in A History of Pupil Transportation in New York State 1925-60 said, "In virtually every case

authorization for transportation was directly related to the closing of small school units and to the necessity of conveying the children to a larger operating unit."[1]

In the 20th century this ceased to be the prime consideration in transportation and transportation aid. It was recognized that transportation was of prime importance as a means of access to education and thus important in insuring equal educational opportunity for all pupils. As early as 1905 Cubberly cited the importance of transportation as "a means of improving educational opportunity and of equalizing educational advantages."[2] Strayer and Haig (1923) also stressed the importance of transportation in the "equalization of educational opportunity."[3]

The history of pupil transportation can be divided into three periods: (1) Prior to 1809 no states authorized local school districts to spend money on pupil transportation. In 1809 Massachusetts became the first State to allow local district transportation expenditures, (2) Between 1870 and 1930 most states authorized transportation expenditures and many began to provide aid to local districts, (3) From 1930 to present, recognizing the importance of transportation in guaranteeing equal educational opportunity, almost all states began to provide aid.

---

[1] Robert Ernest Neidich. A History of Pupil Transportation in New York State 1925-60, page 36.

[2] Ellwood P. Cubberly. School Funds and Their Appointment. New York: Columbia University, 1905.

[3] G.D. Stryaer and K.M. Haig. The Financing of Education in the State of New York. New York: The Macmillian Comp., 1923.

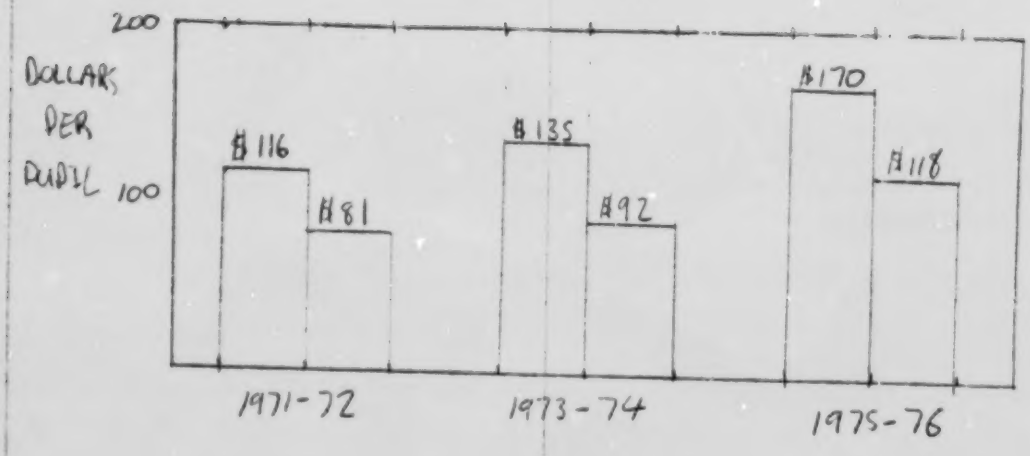
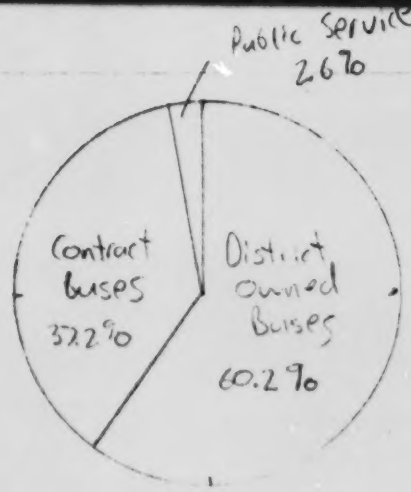
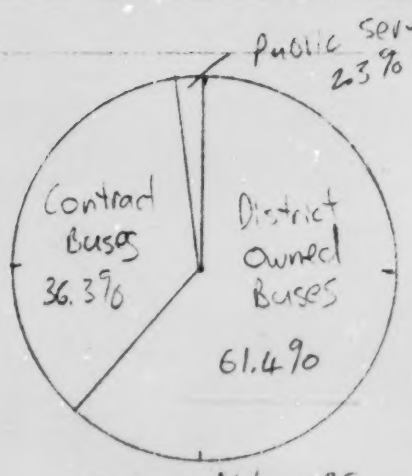


Figure 2.4 Expenditures per Pupil and Aid per Pupil for the above school years.



Students Transported
Total = 1,598,216



Expenditures
Total = $211,100,119

Figure 2.5 Students Transported and Expenditure Incurred by Type of Carrier, 1975-76
(Excludes NYC)

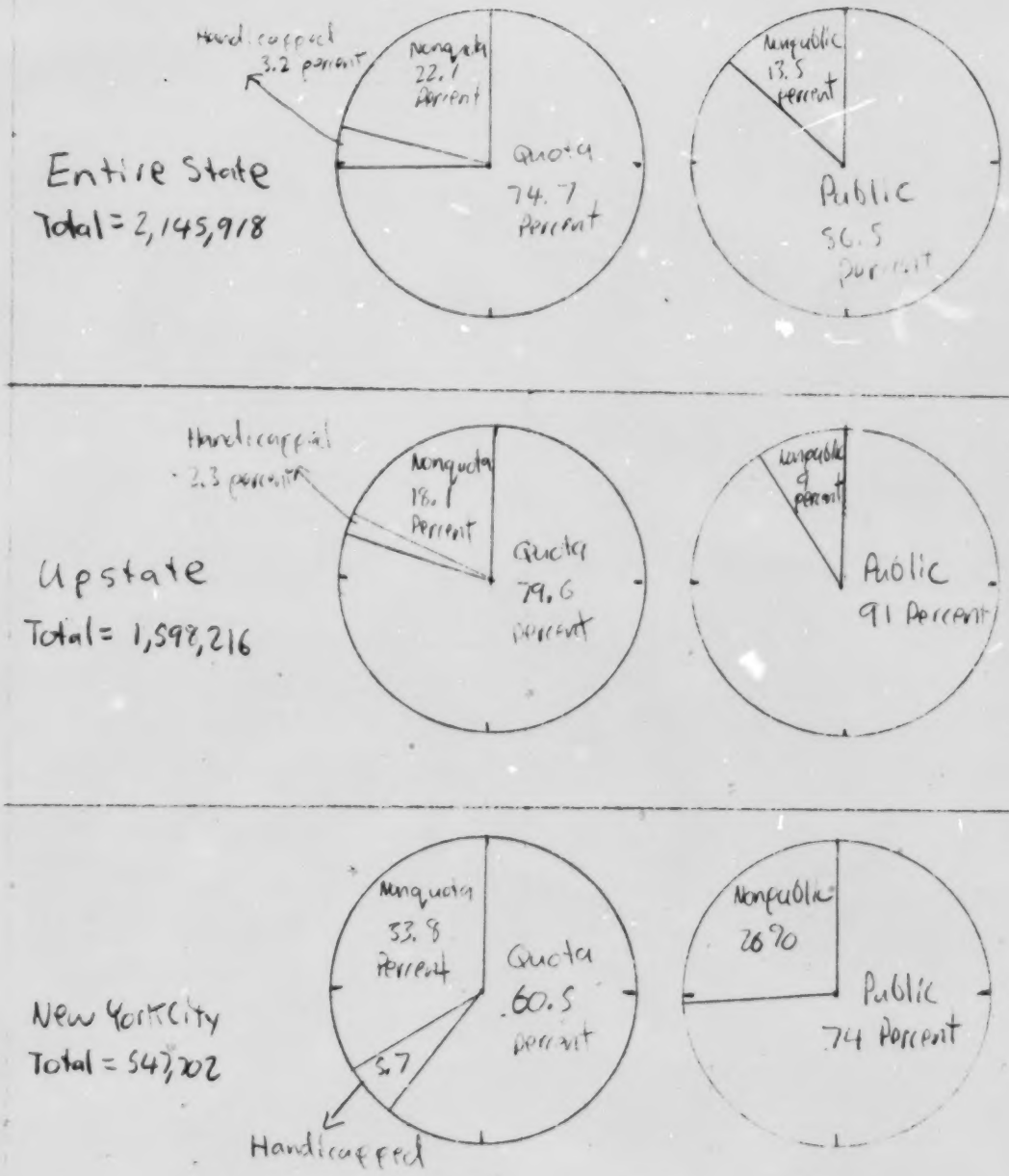


Figure 2.3 Distribution of Quota, Nonquota Handicapped, Public and Nonpublic Pupils Transported, 1975-76 School Year

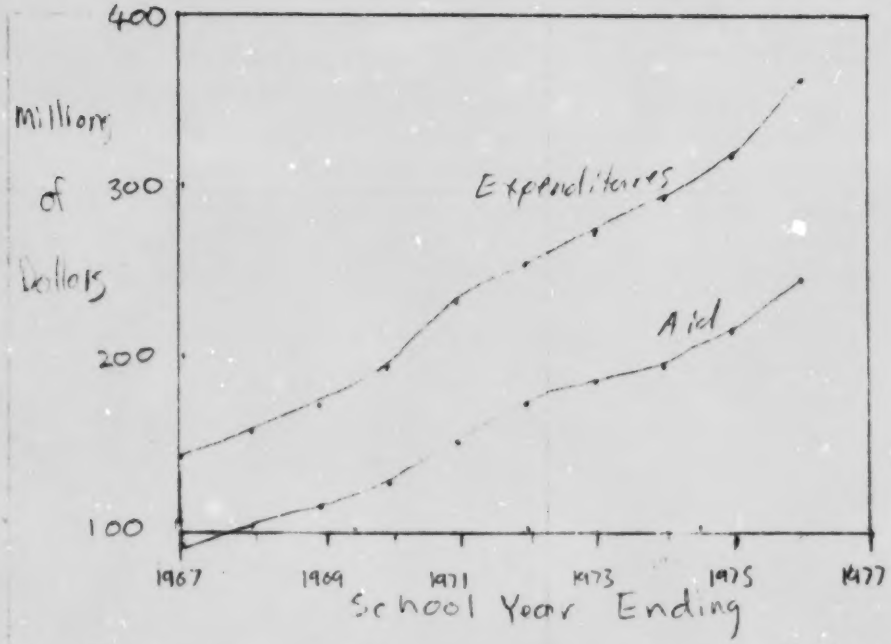


Figure 2.1 School Transportation Aid and Expenditures, 1967-1976

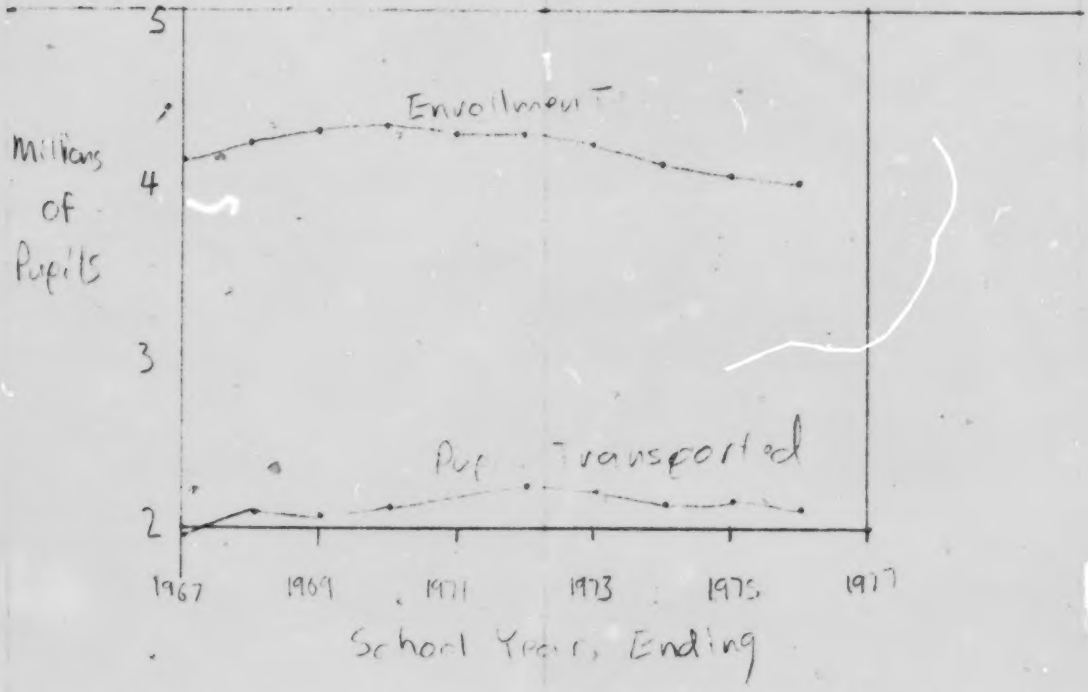


Figure 2.2 Pupils Enrolled and Pupils Transported, 1967-1976

School Year Ending	millions of Dollars		Millions of Pupils	
	Aid	Expenditure	Enrollment	Pupils
1976	254.2	364.4	4.027	2.146
1975	222.5	321.2	4.069	2.189
1974	199.4	294.5	4.132	2.178
1973	187.1	275.7	4.213	2.203
1972	178.8	257.7	4.276	2.220
1971	153.7	234.9	4.277	—
1970	133.6	195.0	4.284	2.126
1969	117.4	175.0	4.270	2.076
1968	104.8	158.9	4.209	2.094
1967	93.1	143.3	4.140	1.947

Today, the equality of educational opportunity rationale remains paramount as the underlying purpose for providing pupil transportation. Robert Neidich, in speaking about the role of transportation in education stated "Pupil Transportation... is a segment of the long struggle to establish a system of universal free public education equally available to all."[1]

History of Pupil Transportation in New York State

Although New York State school districts were authorized to provide pupil transportation at public expense in 1896, it was not until 1925 that the State began to provide aid for pupil transportation. This was accomplished through the enactment of Chapter 673 of the Law of 1925 (Cole-Rice Law).

Aid under the Cole-Rice Law was made available to all central, common, union free and consolidated school districts which had tax levys of at least five mills per dollar of property value. These districts were reimbursed by the State for one half of their actual pupil transportation costs. Central high schools and city districts were not eligible for pupil transportation aid.

In 1938, a constitutional amendment was approved which specifically allowed pupil transportation aid for non-public school purposes. But, any transportation to non-public schools required the approval of local district voters.

---

[1] Robert Ernest Neidich. A History of Pupil Transportation in New York State, 1925-60, page 32.

In 1942, the Rapp Law changed the transportation aid formula from one based on a quota (one half of costs) to one based on a ceiling comprised of expenditures for amortization of equipment, insurance, driver's salaries, fuel, oil, tires, maintenance and repairs, and storage of buses. Central high schools and city districts were still not eligible to receive transportation aid. Eligible districts had to contribute an amount equivalent to a one mill tax on their actual valuation towards transportation with the State making up the remaining cost. Contract expenses were reimbursable but the amount could not exceed the amount that would be paid if the district owned the buses. In 1942-43 State aid for pupil transportation amounted to $3 million.

In 1956, the Heald Commission (formed to study State aid) cited the many problems associated with the Rapp Law (i.e. too many factors resulting in undue administrative manhours and needless confusion) and proposed a new formula which would provide transportation aid on a foundation basis. Criticisms of the Rapp formula continued to mount. In a 1958 study[1], Ross had this to say about the Rapp formula:

> the present detail-sum formula does not provide any allowance for some transportation costs which are common and significant to all districts. For instance, there is no provision for the costs of the districts' contribution to retirement funds and social security for transportation personnel....There is little that can be gained in seeking equity in a transportation formula by introducing a great number of factors or in tinkering with the present component elements. Our current studies and the

[1]State of New York, State Education Department, Fiscal Studies Section Report No. 7, Transportation Formula, Donald H. Ross, January 10, 1958.

> Heald Commission studies have demonstrated that it is possible to achieve more equity with a few factors that are the determiners of cost rather than a list of items thought to be the components of cost.

Two years later, in 1960, a transportation advisory committee was formed by the New York State Education Department and among their recommendations[1] were the following: (1) State support for handicapped should be granted regardless of distance, (2) State aid should be available on the same basis to all school districts, (3) State aid should compensate districts for 100 percent of approved and reasonable costs, (4) State aid should be available for transporting all pupils who live more than one mile from school of attendance, and (5) The State Education Department control in approval of bus capacities, routes and contract agreements should be discontinued.

In 1960, the Joint Legislative Committee on School Financing (Diefendorf Committee) was formed. The Diefendorf Committee restated previous criticisms of the quota formula made by the Heald Commission, Ross, the State Education Department and others.[2] The following recommendations made by the Committee were enacted into law (Chapter 657, Laws of 1962): (1) Expand transportation aid to include city school districts and handicapped pupils, (2) The State reimburse a district for

---

[1] State of New York, State Education Department, A Final Report To Transportation Study Committee, Anthony J. Capunno, Nov. 23, 1961.

[2] State of New York. Joint Legislative Committee on School Financing, Final Report. Legislative Document No. 11, 1963.

transportation expenditures approved by the Commissioner, and (3) Aid reimbursement should be made at the rate of 90 percent of approved transportation expenditures.

The Diefendorf Committee made other recommendations which were not incorporated into law. The Committee recommended that expenses such as fringe benefits and administrative costs be included as approved costs, that pupil transportation be organized on a regional basis, and that aid be paid for transportation costs below a statewide norm, based on district size and pupil miles. Approved costs were to be determined using the same quota elements as in the Rapp Law of 1942. A change was made concerning nonquota pupils (those living less than 1.5 miles from school). The costs associated with transporting those pupils were not to be included in the approved cost figure.

Since 1962 transportation aid has been provided at the rate of 90 percent of approved costs. Many attempts have been made to change the formula since that time. In 1967 the Joint Legislative Committee to Revise and Simplify the Education Law began operation. A state aid staff report (No.6) discussed the problem with the 1962 formula advancing its recommendations that transportation be provided for reasons of safety (more than distance) and to accommodate "modern concepts about using a car rather than walking."[1]

[1]State of New York, Joint Legislative Committee to Revise and Simplify the Education Law, State Aid for Transportation Expenses: State Aid Staff Report No. 6, November 1968.

The most recent exploration of pupil transportation was undertaken by the New York State Commission on the Quality, Cost and Financing of Elementary and Secondary Education (Fleischmann Commission), which was completed in 1972. The three main recommendations concerning transportation: (1) Full state assumption, (2) regionalization of transportation services, and (3) coordination of school transportation and public transportation systems, were acknowledged and ignored.

MAGNITUDE OF PUPIL TRANSPORTATION ENTERPRISE

A total of 2,145,918 pupils were transported to public and nonpublic schools in New York State in the 1975-76 school year at a cost of $364,413,886. This represents a cost of $170 per pupil transported. State aid for the 1975-76 school year (paid out in 76-77) totaled $254,192,786; or $119 per pupil. This amounted to 70 percent of total costs. New York State transports more students involving greater total costs and aid than any other state. So, it can be seen that New York's pupil transportation system is extensive in its scope and significant with regards to the monies involved.

State Pupil Transportation Policy

State Education Law, Section 363s(1) states that New York school districts must provide "sufficient transportation facilities" to and from school for all children living in the

district who require transportation because "of the remoteness of the school to the child or for the promotion of the best interest of such children."

All school districts, with the exception of city districts, must provide to and from school transportation for pupils in (1) Grades kindergarten through eight, living more than two miles from school, and (2) Grades 9 through 12, living three miles or more from school. In both cases, transportation is required up to a maximum of 15 miles, one way. These distance requirements apply to nonpublic school (private and parochial) students as well as public school students.

The law states that school districts may provide transportation for distances less than the two or three miles and greater than the 15 miles, and if so provided must be made available equally to all children living in the district whether attending public or nonpublic schools. Transportation to parochial schools is to the nearest available parochial school of that particular denomination.

The 62 City School Districts are not required to transport regular pupils. They have the option of providing any level of pupil transportation they wish as long it is provided "equally to all children in like circumstances." The transportation of pupils in New York State cannot be legally provided solely upon the basis of hazard. If, because of safety reasons, a district chooses to transport some pupils who live less than 3/4 of a mile or more away from their school, they must transport all pupils who live less than 3/4 of a mile from school.

Education Law, Section 4402 states that all school districts must provide, "suitable transportation to any from special classes or programs" for handicapped pupils. Section 440 1(4) states that:

> ...such transportation shall not be in excess of fifty miles from the school district of which such child is a resident to the appropriate special service or program...

The school board selects the "most reasonable and appropriate special service or program." The Commissioner of the State Education Department can approve transportation to a facility more than 50 miles away if it considers it necessary.

Pupil Transportation
Aid

Generally speaking, all school districts are reimbursed by the State an amount equal to 90 percent of their approved transportation expense. Approved transportation expense is the expenditure "incurred and approved by the Commissioner for transportation of regular (nonhandicapped) pupils who live more than 1.5 miles from the school of attendance, measured by the nearest available road to such school, or who live more than one mile from an approved route and also more than 1.5 miles from the school."

The costs of transporting handicapped pupils up to 50 miles (one way) to required special services or programs are aidable. Costs to transport to distances greater than 50 miles are aidable if deemed necessary by the Commissioner.

Transportation expenditures approved for State aid are those incurred for transporting pupils "to and from school once daily." Therefore, expenditures for field trips, and shuttle trips between schools (except dual enrollment pupils) are not eligible for transportation aid but are aided under the operating aid formula. Expenditures for late buses transporting pupils home after extra-curricular activities are allowable, since they meet the criterion of "to and from school once daily."

Expenditures for transporting certain pupils are not approvable for transportation aid purposes. In this category are transportation costs for pupils who live 1.5 miles or less from school, nonresident pupils and pupils who are transported to public schools outside the district of residence. Other deductions made from total expenditures include the cost of operating more buses than necessary to transport allowable pupils, the cost of operating an unapproved bus, or the use of an unapproved route. Certain irregularities in contracts also result in deductions being made, as in the case of contracts not being advertised, being executed after service has begun, being filed late, or payments made in excess of contract terms. The amount of state aid payable on the purchase of a school bus is limited to the state contract price for a similar bus or if no similar bus is available under state contract, to the statewide median cost of similar buses.

TRENDS IN THE PUPIL TRANSPORTATION SYSTEM

Expenditures and Aid

Total transportation expenditures in New York State increased from $143.2 million in the 1966-67 school to $364.4 million in the 1975-76 school year, an increase of 154 percent. During the same period, transportation aid increased 172 percent (from $93.1 million to $254.2 million). As indicated in Figure 2.1, the changes in aid have closely paralleled the changes in expenditures. The average percent change in expenditures from one year to the next has been 11 percent while the same figure for aid has been 12 percent. For the State as a whole, aid as a percent of total expenditures has remained fairly constant, increasing from 65 percent in 1966-67 to 69 percent in 1975-76. This increase is the result of aid increasing at a higher annual percentage rate than expenditures (12 percent to 11 percent). When New York City is looked at separately, the same conclusion cannot be made. For New York City, aid as a percent of total expenditures went from 49 percent in 1966-67 to 66 percent in 1975-76. This can be attributed to a redistribution of State aid from the rest of the State to New York City during that time. In 1966-67 New York City received 27 percent of all transportation aid. This increased to 39 percent in 1975-76. During this period, New York City aid increased 288 percent compared to 172 percent for the entire State.

Enrollment and
Pupils Transported

Both enrollment and the number of pupils transported have steadily declined since the 1971-72 school year. The number of pupils transported has decreased at an average annual rate of .84 percent while the rate of decrease for enrollment is almost twice that at 1.49 percent (See Figure 2.2). The percentage of enrolled pupils transported was 51 percent in 1971-72 compared to 53 percent in 1975-76. The percent of enrolled nonpublic pupils transported for the State was lower. That was not true for New York City. In fact, New York City transports a slightly higher percent of enrolled nonpublic students than enrolled public school students. When a comparison is made between upstate and New York City, it can be seen that overall, New York City transports a lower percentage of enrolled pupils. The reason is that New York is quite dense with many pupils living very close to their schools.

There are various types of pupils transported: public school pupils, nonpublic school pupils, and handicapped pupils. Public and nonpublic pupils are classified as either quota or nonquota. Nonquota pupils are those who live less than 1.5 miles from their school of attendance. Quota pupils live more than 1.5 miles from school. Transportation expenditures for nonquota pupils are not aidable while expenditures for quota pupils are. When one analyzes the distribution of these types of pupils by region (entire

State, upstate, New York City), several differences become apparent (See Figure 2.3). Handicapped as a percent of total pupils transported was 5.7 percent for New York City, double the percentage for upstate. Also, New York City transported higher percentages of nonquota and nonpublic than both upstate and the State as a whole. New York City transported 20 percent of all students transported in the State, and receives 40 percent of the total amount of transportation aid disbursed throughout the State.

Expenditures and Aid Per Pupil

As described in previous sections, total expenditures and aid have been increasing at an average annual rate of 11 percent and 12 percent respectively, while the number of pupils transported has been decreasing .84 percent each year. Expenditures and aid per pupil were $117 and $81 in 1971-72 respectively. The same figures for 1975-76 were $170 and $118, as indicated in Figure 2.4.

There are several factors which have contributed to the 45 percent increase in per pupil expenditures since 1971-72: (1) Inflation. The consumer price index has increased from 125.3 in 1971-72 to 170.5 in 1975-76, a 30 percent increase. Inflation has resulted in increases in the costs of salaries and equipment, the prime components of transportation expenditures; (2) Increases in the number of handicapped pupils transported. Since 1971-72 the number of handicapped pupils transported has increased by 80 percent (25,700). Based on a sample of data, it was estimated that the cost of transporting a handicapped student is somewhere between five and eight times the cost associated with transporting a regular pupil; and (3) The Aid Formula. Aid is disbursed to school districts at the rate of 90 percent of approved costs. This type of formula does not provide strong incentives for a district to operate in an economical and efficient manner, thereby resulting in increased expenditures. In 1975-76, the entire State spent $170 per pupil for transportation, $132 per pupil for Upstate, and $280 per pupil for New York City. New York City also, received the largest amount of aid per pupil. Two factors that contribute to this cost difference are: (1) The costs of goods and services are higher in New York City, and (2) New York City transports higher percentages of nonquota, and nonpublic, and handicapped pupils than upstate and the State as a whole.

PUPIL TRANSPORTATION SYSTEMS IN NEW YORK STATE

There are three different types of pupil transportation systems used by New York State school districts to transport pupils to and from school: (1) District Operated Systems. The individual district has its own buses, employees, and operates the system; (2) Contract Systems. The school district pays a private contractor to transport pupils in the contractor buses; and (3) Public Service Systems. The school district pays the local transit authority for providing transportation service.

TABLE 2.1

NUMBER OF SCHOOL DISTRICTS BY TYPE OF PUPIL TRANSPORTATION SYSTEM, 1973-74 1975-76

	1973-74		1975-76	
TYPE OF SYSTEM (1)	NUMBER OF DISTRICTS (2)	PERCENT (3)	NUMBER OF DISTRICTS (4)	PERCENT (5)
District Owned-Only	256	36.8	307	43.6
District Owned and Contract	267	38.4	220	31.3
Contract Only	75	10.8	81	11.5
District Owned, Contract and Public Service	51	7.3	53	7.5
Contract and Public Service	38	5.5	37	5.3
District Owned and Public Service	7	1.0	5	0.7
Public Service	1	.1	1	0.1
Total	695	99.9	704	100

Table 2.1 shows the number of districts using seven possible combinations of transportation systems, both in 1973-74 and 1975-76. As Table 2.1 indicates the system used by most districts in 1975-76 is the one operated by the district. The next most popular system is that one which utilizes district owned buses and contractor buses. Over 75 percent of all districts use either of these two systems.

The only significant change since 1973-74 has been in the District Owned Only, and District Owned and Contract Categories. The number of Districts operating their own system has increased 20 percent while the number using their own buses and contractor buses has declined 21 percent.

Figure 2.5 shows the relative percentage of students transported and expenditures incurred by type of carrier.

The percentage of expenditures devoted to each type of carrier closely corresponds to the percent of pupils transported by each type of carrier. Since 1971-72 there has been a slight drop in the percentage of pupils transported by contractor and public carrier buses and an increase in the percent transported by District Owned buses (from 59 percent to 60.2 percent). New York City transports approximately 75 percent of their students on public service buses which has remained about constant since 1971-72.

Characteristics of Districts which have District Owned and Contract Systems

For the purposes of analysis, the seven types of pupil transportation systems shown in Table 2.1, were reclassified into the following four groups for the 75-76 school year as follows: (1) District Operated Only (DO). Districts in which all pupils were transported on district owned buses. This amounted to 307 districts, or 44 percent of districts in the State; (2) District Mixed (DM). Districts in which at least 50 percent of pupils were transported on district owned buses. This category represented 23 percent of the total, or 157 districts; (3) Contract Only (CO). Districts in which all pupils were transported on contract buses. There were 81 districts (12 percent) which met this criterion; and (4) Contract Mixed (CM). Districts in which at least 50 percent of the pupils were transported on contract buses. There were 145 districts (21 percent) which met this criterion.

Location of DO,DM
CO, CM Districts

The overwhelming majority of District Operated Only (DO) and District Mixed (DM) districts are located upstate, 96 percent and 88 percent respectively (See Table 2.2.).

Contract Only (CO) and Contract Mixed (CM) districts are predominantly located Downstate, though not to the extent that District Operated Only and District Mixed districts are located upstate.

Table 2.3 contains data on the location of school districts broken down by urban, suburban and rural classifications. DO districts are primarily located in rural areas (57 percent) whereas DM districts are in suburban areas (52 percent). The breakdowns for CO and CM districts are almost identical. Almost three-quarters of both types are located in suburban areas; (74 percent and 72 percent respectively) with the rest almost equally divided between urban and rural locations.

The typical CO or CM district is located in a downstate, suburban community. The typical DO or DM district is located upstate. The overwhelmingly majority of DO and DM districts are located in suburban or rural areas, with the majority of DO districts in rural areas and the majority of DM districts in suburban areas.

Other Characteristics
of DO,DM,CO,CM Districts

Differences between the district operated systems (DO and DM) and the contract operated systems (CO and CM) are

TABLE 2.2

DISTRIBUTION OF DISTRICTS BY TYPE OF TRANSPORTATION AND LOCATION, 1975-76

LOCATION	DISTRICT OPERATED ONLY		DISTRICT MIXED		CONTRACT ONLY		CONTRACT MIXED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Upstate	296	96	138	88	34	43	64	44
Downstate	11	4	19	12	46	57	81	50
Total	307	100	157	100	80	100	145	100

TABLE 2.3

DISTRIBUTION OF DISTRICTS BY TYPE OF TRANSPORTATION SYSTEM AND LOCATION (URBAN, SUBURBAN, RURAL) 1975-76

LOCATION	DISTRICT OPERATED ONLY		DISTRICT MIXED		CONTRACT ONLY		CONTRACT MIXED	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Urban	9	3	12	8	12	15	22	15
Suburban	123	40	81	52	59	74	105	72
Rural	175	57	64	41	9	11	18	12
Total	307	100	157	100	80	100	145	100

still apparent when variables other than location are considered. The mean values for several variables by type of location are summarized in Table 2.4.

TABLE 2.4

MEANS OF SELECTED VARIABLES FOR SCHOOL DISTRICTS WITHIN EACH CATEGORY 1975-76

VARIABLE (1)	DISTRICT OPERATED ONLY (2)	DISTRICT MIXED (3)	CONTRACT ONLY (4)	CONTRACT MIXED (5)
Number of School Buildings	3.4	4.4	5.2	7.4
Number of Square Miles	79.1	67.7	22.7	29.7
Enrollment	2038	2731	3030	5007
State Aid Ratio	.6498	.6053	.4550	.4742
Total Pupils Per Square Mile	76.89	214.59	221.56	462.56
Per Pupil Total Expenditure	198.97	146.52	234.77	174.03

From the information presented in the table, the following general conclusions can be made: (1) CO and CM districts have more buildings and higher enrollments than DO and DM districts, (2) DO and DM districts have more square miles, higher state aid ratios (meaning lower property valuation) and lower pupil (transported) density than contract districts, and (3) Contract Only Districts have the highest per pupil total and approved

expenditures followed by district only, contract mixed and district mixed.

The reason that DO districts have the second highest expenditure per pupil may be because those districts are by far the most sparse of all groups. Caution must be exercised in comparing expenditures between District Owned and Contract Operated Districts. Fringe benefits and other expenses are included in contract transportation expenditures but are not included in District Operated Only transportation expenditures. Districts which transport their pupils on district owned buses are different in many respects from districts which use contract buses.

FIRST DRAFT

CHAPTER 3

ANALYSIS OF THE ADMINISTRATION OF NEW YORK'S PUPIL TRANSPORTATION PROGRAM

As indicated previously in Chapter 2, the purpose of the pupil transportation system in New York State is to guarantee that every child has equal access to an education. The objectives of the State in the operation of that system are to insure that the transportation is provided in a safe, equitable, efficient and economical manner. The administration of the pupil transportation program by the State Education Department was evaluated in accordance with those objectives.

STATE EDUCATION BUREAUS RESPONSIBLE FOR ADMINISTERING PUPIL TRANSPORTATION

The State Education Department is the agency with the responsibility for administering the pupil transportation program. That responsibility has been assigned to the State Education Department through various State statues.

The Bureaus of State Aided Programs and Special Educational Management Services, Pupil Transportation Section are the units within the education dpeartment charged with administering the pupil transportation program. Both Bureaus are within the Office of Educational Finance and Management Services.

The State Aided Programs Bureau audits district State Aid claims and disburses the aid. The Bureau of Special Educational Management Services, Pupil Transportation Section, approves all contracts, bus purchase expenditures, bus capacities and the accuracy of the information on quota/nonquota bus loading. This bureau also conducts field transportation audits and provides technical services to local districts.

In 1976-77, these two Bureaus spent a total of $240,311 to administer the state pupil transportation aid program.[1] The total amount of transportation aid disbursed in 1976-77 (based on 1975-76 transportation statistics) was $253.2 million. Administrative costs as a percent of total program costs were .09 percent.

Several procedures that State Education Department used in administering the pupil transportation program were analyzed. These included the computation of approved costs, deductions for nonquota pupils, the approval of bus purchases, bus routes, and bus contracts. State Education Department budgeting procedures were also discussed.

DETERMINATION OF APPROVED COSTS

By statute, the State Education Department has the authority to determine how approved costs are defined. Such costs are reimbursable at the rate of 90 percent. The total home to school cost to the district for transporting quota pupils is considered approved for contract and public carriers.

[1]Legislative Commission on Expenditure Review, State Pupil Transportation Programs, page 39.

For district-owned pupil transportation systems SED states:[1]

> It is our interpretation that the following are approved expenditures: driver's wages, mechanic's wages, assistant drivers on handicapped buses, automotive parts, gasoline, oil, lubricants, anti-freeze, tires, chains, liability and property damage insurance, contract repair of buses, bus fire insurance, workmen's compensation, emergency lease of school buses, bridge tolls (for regularly scheduled bus routes), custodial wages for work done in the bus garage, heating fuel, electricity, telephones, water and sewer expense. It is our interpretation that the expenditures for transportation supervisor's salaries, fringe benefits, transportation and garage equipment are not covered by the provision of these sections of law (Education Law Section 3627) and therefore, are not eligible for aid under the transportation quota.

This determination by SED of what constitutes approved expenses results in a double standard. It works to the disadvantage of district owned systems. For example, certain expenses, such as fringe benefits, are not approved for district owned systems, but are approved for districts which use contractors and/or public carriers. The result is that the transportation fringe benefits for districts which own their buses are aided under the general operating formula instead of under the transportation formula as with contract and public carrier districts. The rate of reimbursement under the general operating aid formula is less than the 90 percent allowed of approved pupil transportation expenditures.

Section 3627 of the Education Law spells out which expenses are allowable for district owned systems. The SED has included some expenses as approved which are not specifically

[1]Letter to LCER staff from SED, Acting Deputy Commissioner, Office of Elementary, Secondary and Continuing Education, July 22, 1977.

mentioned by the law, such as bus monitors on vehicles for the handicapped. Also, there are expenses not specifically excluded, fringe benefits for transportation supervisor -- which the SED does not consider approved.

DEDUCTION PROCEDURES

The State Education Department have several deduction procedures which do little to encourage the efficient and economical operation of district pupil transportation systems. The more efficient and economical a district's operation is, the less state aid that district will obtain. Inefficiency of operation has an adverse financial effect at both the district and State level.

Capacity Deduction For Nonquota pupils

Education Law, Section 3623 requires that school bus capacity not exceed district needs.[1] The State Education Department's capacity deduction procedure is designed to implement this law and to prevent the payment of State aid for the purchase of school bus seat capacity used to transport nonquota pupils.

Each district is required to submit a "Transportation Routing Data" worksheet which provides the following information for each bus route: route mileage, quota and nonquota pupils transported, allowable and unallowable pupil miles and seating capacity. From this information, the SED determines what

[1] Legislative Commission on Expenditure Review, State Pupil Transportation Programs, page 50.

adjustments should be made in approved capacities (raised or lowered). Table 3.1 shows how increases in approved capacity for buses rated under capacity are calculated.

The difference between approved capacity and the maximum quota pupils transported for all buses is totaled. The average surplus or deficiency is calculated by dividing the total by the number of buses with approved capacities below actual capacity. Then, approved capacities are raised or lowered based on the average surplus or deficiency computed. If buses 23 and 24 were purchased during the 1977-78 school year, the total capacity deductions would be calculated as follows:[1] (See Table 3.1).

	Bus 23	Bus 24
State Contract Cost	$12,536	$16,313
Ratio Approved to Actual Capacity	30/30	42/66
Percent Capacity Unapproved	0%	36.36%
Capacity Deduction	0	$5,932

Therefore, the approved cost (which is aidable at 90 percent) for Bus 24 would be reduced by $5,932. Instead of receiving $14,682 (.9 x $16,313) in aid for Bus 24 the district would receive $9,343 [.9 x ($16,313 - $5,932)].

In terms of both efficiency and economy the State Education Department's bus capacity deduction procedure has several faults: (1) It contains incentives for districts to finance bus purchases over several years resulting in higher

[1]Legislative Commission on Expenditure Review, State Pupil Transportation Programs, page 51.

TABLE 3.1

ROUTING INFORMATION FOR HYPOTHETICAL SCHOOL BUS FLEET

NUMBER (1)	NUMBER (2)	APPROVED AND ACTUAL CAPACITY (3)	NUMBER OF QUOTA PUPILS (4)	(INC. 20% EXCESS OF STANDEE DEFICIT ALLOWANCE) (5)
21	AM-1	60	40	-20
21	AM-2	60	55	- 5
21	PM-1	60	40	-20
21	PM-2	60	55	- 5
22	AM-3	42/60	60	+18
22	PM-4	42/60	45	+ 3
22	AM-3	42/60	60	+18
22	PM-4	42/60	45	+ 3
23	AM-5	0/30	20	+20
23	AM-6	0/30	26	+26
23	PM-5	0/30	20	+20
23	PM-6	0/30	26	+26
24	AM-7	0/66	54	+54
24	AM-8	0/66	58	+58
24	PM-7	0/66	54	+54
24	PM-8	0/66	58	+58

Application of Present Procedure for Determining Capacity Approval

Bus Number	Approved and Actual Capacity	Maximum number of Quota Pupils	Surplus or Deficit
21	60	55	- 5
22	42/60	60	+18
23	0/30	26	+26
24	0/66	58	+58
			97

97 ÷ 3 (Number of buses with approved capacity below actual capacity) = 32.3. Since average is over 30, next capcity level of 42 is allowed for each bus under capacity. Therefore, the capacity of bus 22 would be increased from 42 to 60, bus 23 would be increased from 0 to 30 and bus 24 from 0 to 42.

Source: Memorandum to SED Associate Commissioner, Educational Finance, Management and School Services from Assistant Commissioner, Educational Finance and Management Services, November 4, 1976.

transportation costs and increased state aid, (2) Small changes in the number of pupils transported can result in large changes in deduction amounts. The potential for manipulation of data on the local level is great, and (3) It discourages multiple tripping of school buses.

If a district makes total payment on a bus in the first year of purchase, thereby saving interest costs, the present system requires a district to pay the penalty in State aid deductions if all buses are not rated at full capacity. If buses are purchased by a bond issue, the district has a time advantage in order to build up the capacity of these buses, thus assuring 90 percent State aid on both the purchase of the bus plus interest costs. Therefore, total costs are increased by the interest costs, and State aid increased by 90 percent of interest costs.

Small changes in the number of pupils transported can have a disproportionate effect on the amount of aid received. In Table 3.1, if the average surplus were 29, a few more pupils transported on a single bus would put that average over 30, thereby raising the approved capacity in some buses from 30 to 42. The approved to actual capacity ratio would be higher, resulting in less of a reduction in State aid. The percentage change in the deduction would be much higher than the percentage change in pupils transported.

Concerning the effect of the capacity deduction procedure on multiple tripping, the State Education Department's Advisory Committee on Pupil Transportation[1] had this to say:

---

[1]SED, Bureau of Special Educational Management Service, Report of the Transportation Advisory Committee of the New York State Education Department, Annual Report for 1974-75, page 77.

When the present method of determining capacity was first devised, school districts were either running two or four trips on each bus. Therefore, a bus would probably pick up a load of secondary students at 8:00 A.M. and another load of elementary students at 9:00 A.M. If a bus was not scheduled to pick up sixty students living over one and one-half miles, on either load, the State would then assume that a district should have purchased a smaller vehicle.

Today, however, buses are making multiple trips. For example, a bus travels six miles to pick up forty-four allowable high school students; three miles to pick up forty allowable and twenty nonallowable elementary students; four miles to pick up fifty junior high school students; and six miles to pick up sixty-four nonallowable primary students. Many things enter into the scheduling of a school bus. Trips are balanced according to miles per bus to cut down on maintenance costs. Students riding time is kept to a minimum. Maximum use is being made of this bus. Yet, the district suffers a reduction in state aid on its new purchases based on the fact that this particular bus didn't have sixty allowable children on one of its trips.

The state claims the district did not need a new sixty passenger bus because some of its older buses were not at capacity. Yet if the district split the schedule of the above mentioned bus, the state would award full ninety percent of purchase on two forty-two passenger buses, thus increasing driver and maintenance costs. Therefore, the present system defeats its original purpose -- to assure the state that a fleet is operating efficiently and economically.

Deduction for Non-Allowable Pupil Miles

The capacity deduction procedure is designed to determine the amount of capacity used to transport nonquota pupils and present the payment of state aid for the purchase

price of that nonquota capacity. Similarly, the mileage deduction procedure is also designed to prevent the payment of State aid for costs associated with nonquota pupils, in this case, home to school pupil transportation costs. The procedure is not based on expressed statutory language, but based on past practice.

From the Transportation Routing Data forms the percentage of pupil miles for nonquota pupils is calculated and then multiplied by total home to school costs. The resulting amount is deducted from total home to school costs to obtain an approved cost figure. The calculations are as indicated in Table 3.2.

TABLE 3.2

CALCULATION FOR NONALLOWABLE PUPIL MILES DEDUCTION

Number Quota Pupils	x	Total Route Mileage	=	Allowable Pupil Miles
Number Nonquota Pupils	x	1.5 miles	=	Nonallowable Pupil Miles
Nonallowable Pupil Miles / Total Pupil Miles	x	Total Home to School Costs	=	Cost Deduction For Nonallowable Pupils

State Aid then = .9 (Total Costs - Cost Deduction)

Source: Legislative Commission on Expenditure Review, State Pupil Transportation Programs, page 60.

There are two basic criticisms of this procedure: (1) Multiplying each nonquota pupil times 1.5 miles and each quota pupil times the total route mileage may not give an accurate indication of the actual pupil miles for each. But, that might be the most practical way to do it; and (2) More importantly, the procedure discourages the efficient operation of local district transportation system. The incentive is not for districts to have the most efficient bus routes, but rather have bus routes which enable the district to achieve the combination of quota and nonquota pupils which will maximize aid. The Legislative Commission on Expenditure Review[1] interviewed school officials in selected districts and those officials indicated that maximization of aid was a prime objective in planning of bus routes.

APPROVAL PROCEDURES

To achieve the objectives of safe and efficient pupil transportation and assure conformance to State law, the State Education Department reviews pupil transportation contracts, bus purchases and bus routes. Appropriate comments or approval procedures for each of these areas are discussed in the following paragraphs:

Contract Approval

The Bureau of Special Educational Management Services contract approval procedure is designed: (1) To assure that

[1]Legislative Commission on Expenditure Review, State Pupil Transportation Programs, page 67.

contracts awarded meet state requirements as to form and substance; (2) To test whether the award was made to the "lowest responsible bidder" and meets SED criteria of reasonable costs; and (3) To inform the district in a timely manner that the contract has been approved by the Commissioner and thus becomes valid and binding to the contractor and the school district. First, the contract is checked to insure that it meets state requirements. Then, the amount of the contract is evaluated according to SED developed reasonable cost criteria. If the contract bid is within the allowable cost, it is approved at the full amount. If it is too high, then the district has to supply additional information on a "cost factor" form. The bid is again reviewed -- this time conditions unique to a particular district are taken into account. Based on SED's cost criteria and the additional information provided by the district, the contract is approved as aidable at either the bid amount or a lesser amount.

This procedure is very helpful in promoting efficient pupil transportation: (1) It insures that the bidding process is conducted in a fair and open manner and that districts are not victimized by profiteering contractors, and (2) It focuses attention on what the determinates of transportation costs are, therefore, helping school districts to hold down costs and thus resulting in lower state aid.

Bus Purchase
Approval

This procedure for bus purchase approval has two basic objectives: (1) To assure that the bus purchased will provide safe transportation, and (2) To insure that districts do not spend too much for their buses. Each bus purchased must conform to body, chassis and equipment specifications set by the State Department of Transportation. This is a means to guarantee that each bus is structurally safe.

Once that is done, the amount of the purchase price approvable for aid is determined. Education Law, Section 3602(7) states that approval expenses be the actual purchase price or the State Contract price, whichever is lower. If there is no comparable bus under State contract, then the approval cost is "the actual purchase price or the statewide median price...whichever is less." This process provides incentives for districts not to exceed the State contract price when they buy a bus. Otherwise they will have to pay a greater part of the total cost.

It appears that the bus purchase approval procedure operates in a positive manner by insuring that (1) new buses are structurally sound and (2) an unreasonable amount is not expended for such purchases. Also, local school district officials indicated to the Legislative Commission Expenditure Review staff that the procedure helped to insure that bus purchases conformed to State statutes and regulations.

Bus Route
Approval

Section 3622 of the Education Law states that:

> The commissioner shall plan and approve each route in a manner to promote maximum efficiency in the operation of a school bus on such route. Whenever practicable each route shall be planned to operate within the boundary of a school district.

Though the intent of the Law is admirable, from a practical standpoint carrying it out appears impossible. There are over 700 school districts in New York State and thousands of bus routes. A very large staff would be necessary to approve all bus routes. Technical compliance with the law is achieved by SED review of Transportation Routing Data sheets submitted by the districts. Other, more practical methods could be devised to insure that transportation routes are efficient. Procedures (Discussed Previously) which discourage efficient routes should be elminiated. The SED could provide monetary and/or technical assistance to districts interested in improving the efficiency of their school bus routing systems.

BUDGETING PROCEDURES

The budgeting procedures utilized by SED with regards to pupil transportation could be improved. As it is now, some of the costs associated with the provision of pupil transportation are not recorded under pupil transportation. Fringe

benefits for transportation personnel in district owned systems are recorded under fixed charges and not under pupil transportation. This puts districts which own their buses at a disadvantage in terms of State aid.

There are also instances in which costs included under pupil transportation should be recorded under another activity. The expenses incurred transporting pupils to and from field trips and athletic events should not be recorded under transportation as they are now. Instead they should be recorded under the activities or functions they are related to, namely, Instruction and Athletics, or Student Body Activities.

Ideally, it would be best if a system of program budgeting were used. In a program budgeting system all expenses related to a certain program and its objectives (i.e., transporting pupils from home to school and back once daily) should be recorded under that program. All expenses incurred by activities aimed at instructing pupils (i.e., field trips) should be recorded under Instruction. Likewise, all the expenses required to transport pupils to and from school should be recorded under transportation. The advantages to a system like this are numerous. It would be easier to determine the costs associated with providing certain programs and activities. This would facilitate the analysis and evaluation of programs to determine whether or not they were meeting their objectives.

FINDINGS

Section 3627 of the Education Law, which spells out which expenses are approved for transportation aid, is obsolete. It was enacted 35 years ago for a previous aid formula. Although the statute does not specifically exclude the inclusion of fringe benefits as an approved expense (for district owned systems), the State Education Department has chosen to exclude fringe benefits. This puts districts which own their buses at a disadvantage in terms of the aid they will receive. The deduction procedures used by the SED -- bus purchase capacity deduction and nonallowable pupil miles deduction -- do not encourage efficiency. Routes are scheduled so that the amount of aid lost through these two procedures is minimized. Therefore, efficiency is not the primary criterion for planning routes; maximization of aid is. This can result in increased total costs and increased aid. The contract and bus purchase approval procedures are effective in that they prevent arbitrary bidding and insure that unreasonable amounts are not spent on buses. Though the requirement that all bus routes be approved by the SED is admirable, it is impossible to carry out given SED manpower limitations. The SED should make steps towards instituting a program budgeting system whereby costs associated with certain programs or functions are recorded under those programs. If they aren't, wherever they are recorded they should be able to be identified with their programs and functions.

FIRST DRAFT

CHAPTER 4

ANALYSIS OF THE OPERATION OF NEW YORK'S PUPIL TRANSPORTATION PROGRAM

This chapter will look at some aspects of the operation of the pupil transportation system in New York State. An evaluation of the safety record of the system will be made. Several possible measures of efficiency, which could be used to evaluate the operation of the system, will be discussed. Questions concerning the operation of contract v. district owned systems will also be discussed.

SCHOOL BUS SAFETY

The responsibility for school bus safety[1] is divided among three state agencies. The Department of Transportation is responsible for the regulation, inspecting and certifying the safety of school buses. The State Education Department is responsible for ensuring that sufficient pupil transportation facilities are provided by districts and that they are operated in a safe, efficient and economical manner. The department has promulgated rules relative to driver safety, the proper use of the school bus, and the qualifications of the school bus drivers. The Department of Motor Vehicles has promulgated rules and regulations for the licensing of bus drivers, the issuance of vehicle licenses and registrations, and minimum indemnification for school bus insurance.

---

1 Legislative Commission on Expenditure Review, State Pupil Transportation Programs, page 12.

The Legislative Commission on Expenditure Review[1] report on pupil transportation contains a complete discussion on school bus safety. Some subjects addressed in this volume were (1) the extent to which the three agencies have coordinated programs and eliminated duplication, (2) the effectiveness of programs, and (3) compliance with statutory provisions.

Several states with pupil transportation systems similar to New York State's were compared with respect to school bus safety. All the states selected used over 10,000 vehicles and transported over 650,000 pupils daily. With the exception of New Jersey and North Carolina, the annual bus mileage for the selected States is over 100 million miles. New York State transported the most pupils, had the most vehicles and had the second highest mileage total. Table 4.1 contains those statistics plus accident statistics for the selected States.

Table 4.2 contains the number of accidents per million vehicle miles for the selected States from 1965-66 to 1975-76.

The figures for New York State were for upstate only. New York City information was not available. For the past two years New York State has had the lowest accident rate of any of the States compared. That rate rose slightly from 1974-75 to 1975-76 as it did nationally and for all States with the exception of California.

---

[1] Legislative Commission on Expenditure Review, State Pupil Transportation Programs

Since 1969-70 New York has had the second lowest accident rate for two years (1972-73, & 1973-74) and the lowest accident rate for every other year. Prior to 1969-70, New York's record was not as good. During that period New York's accident rate ranged from third to eighth lowest.

Two conclusions can be deduced based on the data contained in Tables 4.1 and 4.2: (1) New York's accident rate has improved the most since 1965-66. The national rate has increased by 3 percent, and only three of the eight states had decreases. New York had the greatest decrease (40%); and (2) Based on the information for the past two years, New York presently has the best safety record of all the States compared.

Conclusion (2) is supported by additional accident statistics. Table 4.3 presents accidents per 100,000 pupils transported, and persons and pupils injured per accident for the selected States for 1974-75 and 1975-76. New York had the lowest accident rate -- in terms of pupils transported. That figure was 21 per 100,000 pupils transported in 1974-75 and 33 in 1975-76.

New York State ranks first when the frequency -- in terms of mileage and pupils transported -- of accidents is considered. However, that is not the case when the severity of accidents is taken into account. The statistics, persons and pupils injured per accident (See Table 4.3), give an indication of the severity of accidents in terms of personal

TABLE 4.1

SCHOOL BUS ACCIDENTS IN SELECTED STATES HAVING A TOTAL VEHICLE POPULATION OF 10,000 OR MORE

STATE (1)	TOTAL VEHICLES (2)	ANNUAL BUS MILEAGE (000's) (3)	PUPILS TRANSPORTED DAILY (4)	TYPE OF SCHOOL BUS ACCIDENT				PROPERTY DAMAGE ONLY (9)	PERSONS INJURED	
				TOTAL[a] (5)	OTHER VEHICLE (6)	NON-COLLISION (7)	FIXED OBJECT (8)		TOTAL (10)	PUPILS (11)
National[b]	380,000	2,600,000	22,200,000	51,000	43,000	2,500	2,800	46,000	7,200	4,300
New York	25,077	200,000	2,204,186	735	580	26	49	640	521	430
California	15,681	207,193	950,421	1,601	1,023	87	92	1,289	327	292
Illinois	14,597	109,874	747,964	662	574	1	9	NR	NR	112
Michigan	12.652	107,514	1,014,710	1,584	1,276	11	59	1,292	NR	NR
New Jersey	10,675	41,021	650,000	568	456	6	56	385	279	185
North Carolina	11,371	89,666	744,760	1,077	930	110	NR	807	569	341
Pennsylvania	22,500	185,000	1,500,000	1,023	916	52	55	888	343	330
Texas	15,328	113,519	741,297	1,909	1,580	33	51	NR	720	252

NR = Not Reported

[a]Totals include additional accidents not shown separately.

[b]Indicated U.S. totals for 1976. U.S. injury totals are disabling injuries only and do not equal the sum of the state totals reported which may include non-disabling injuries.

[c]Based on Federal Highway Administration estimates. Total not comparable with previous years.

[d]Data for earlier year.

Source: National Safety Council, Accident Facts (Chicago: The Council, 1977) page 93.

TABLE 4.2

SCHOOL BUS ACCIDENTS PER MILLION VEHICLE MILES FOR SELECTED STATES
1965-66 THROUGH 1975-76

STATE (1)	1965-66 (2)	1966-67 (3)	1967-68 (4)	1968-69 (5)	1969-70 (6)	1970-71 (7)	1971-72 (8)	1972-73 (9)	1973-74 (10)	1974-75 (11)	1975-76 (12)
National Average	18.6	18.9	19.0	18.1	19.1	20.4	18.8	16.8	17.9	19.2	19.6
New York[b]	6.0	5.4	5.7	4.6	3.0	1.6[a]	1.6[a]	3.6	6.0	2.3	3.6
California	11.2	---	11.3	11.3[a]	11.7	12.5	12.5[a]	12.5[a]	8.0	8.0[a]	7.7
Illinois	2.9	2.7	3.7	3.1	3.1[a]	3.1[a]	---	---	---	6.0	6.0
Michigan	5.0[a]	---	9.7	8.3	8.6	10.9	12.3	11.8	11.8[a]	11.5	14.7
New Jersey	2.7	1.7	2.8	2.8[a]	4.0	---	2.4	3.3	14.4	8.9	13.8
North Carolina	5.9[a]	20.1	19.3	18.4	20.5	24.6	25.5	23.5	22.7	12.8	12
Pennsylvania	8.2	7.8	7.1	---	---	---	5.0	4.7	3.4	4.4	5.5
Texas	2.6	2.6	2.9	---	---	---	11.1	12.7	11.8	15.8	16.8

NOTE: Mileage and school bus crashes listed as reported to NSC by the respective states.

[a]Data from previous year.
[b]New York City data unavailable.

Source: LCER staff from data provided by U.S. Department of Transportation, National Highway Transportation Safety Administration, Pupil Transportation Office, May 11,1977.

TABLE 4.3

ACCIDENT STATISTICS FOR SELECTED STATES

(1)	PERSONS INJURED PER ACCIDENT (2)	1974-75 PUPILS INJURED PER ACCIDENT (3)	ACCIDENTS PER 100,000 PUPILS TRANSPORTED (4)	PERSONS INJURED PER ACCIDENT (5)	1975-76 PUPILS INJURED PER ACCIDENT (6)	ACCIDENTS PER 100,000 PUPILS TRANSPORTED (7)
National	.13	.09	218	.14	.08	230
New York	1.07	.88	21	.71	.59	33
California	.29	.16	NR	.20	.18	168
Illinois	NR	.17	89	NR	.17	89
Michigan	NR	NR	120	NR	NR	156
New Jersey	.56	.50	90	.49	.33	87
North Carolina	.86	.57	152	.53	.32	145
Pennsylvania	NR	.67	52	.34	.32	68
Texas	.26	.11	245	.38	.13	258

Source: 842 Staff from data provided by National Safety Council, Accident Facts (Chicago: The Council, 1976, page 93.

injury. In both 1974-75 and 1975-76 New York State had more persons and pupils injured per accident. The conclusion should not be drawn that New York's safety record is inferior to that of the other States. The importance of that statistic is minimized when one realizes that New York has the lowest accident rates according to miles traveled and the number of pupils transported. The latter rate is less than one half the rate of the next lowest State.

Caution must be exercised in making conclusions based on these data because of the variations among State operations, the lack of standard definitions of terms and the lack of comparable reporting by States. Also, even though the eight States selected for comparison are similar according to the scope of their operations (i.e. Number of vehicles, annual mileage, number of pupils transported), they may differ when other characteristics, which have a bearing on safety, are considered. For example both road conditions and the intensity of road usage may have a bearing on pupil transportation safety. That information was not available.

MEASURES OF EFFICIENCY AND ECONOMY

Measures of efficiency need to be developed before an evaluation of the efficiency and economy of the pupil transportation system in New York State can be made. Such measures would give an indication of how efficient and economical the systems would be in each district, and could point out areas

where improvements might be made. The intent of this section is not to make an evaluation of pupil transportation, but instead to discuss the advantages and disadvantages of several possible measures of efficiency.

Before discussing measures of efficiency, it would be helpful to mention some factors which are important in determining how efficient and economical the operation of a districts transportation system is. These can be divided into three groups:

(1) Non-controllable Factors

a. Road conditions in a district
b. Pupil density
c. The square mile area and topography
d. Traffic intensity and patterns
e. The size of the operation

(2) Factors Subject to State Policy Decisions

a. Requirements for the transportation of regular, handicapped and nonpublic school children
b. Procedures for making deductions (nonquota capacity, nonallowable pupil miles) which may have an effect on district routing decisions
c. The aid formula -- the way in which money is distributed can either encourage or discourage a district to operate in an economical manner.

(3) Factors Subject to Local District Decisions

a. Location of schools -- in many instances, because of site availability, a district may have very little choice where to locate a school
b. The determination of which pupils to transport and how far (beyond State requirements)
c. The number and type of school buses purchased
d. The degree to which equipment is maintained
e. The routing of buses and arrangement of starting times to allow multiple utilization of school buses. The ability of a district to do this depends upon district size, location of school buildings and pupil density.

These Measures of Efficiency could show how efficient a district's system is according to cost and bus utilization.

Pupils Transported
Per Bus Seat Per Day

This gives an indication of the degree to which buses are utilized. If the figure is less than 1, it means that a district's buses are carrying less than one load a day. Higher figures indicate that the buses are being used on many trips.

Factors beyond a district's control can have a bearing on the number of pupils per bus seat the district is able to transport. It is much easier for a small, dense district to make many trips a day and achieve a high degree of bus utilization than it is for a large, sparse district.

Cost Per Pupil
Transported

A gross measure of the expenditures required to transport a pupil is the cost per pupil transported. Sometimes this statistic can be quite misleading. This is because it does not take into account pupil density, miles traveled, or the types of pupils transported. For example, the cost required to transport a handicapped pupil is at least five times the cost to transport a regular pupil. Handicapped pupils require more supervision, special vehicles, and may have to be transported longer distances than regular pupils. A district with a high proportion of handicapped students will have a high cost figure. If the number of handicapped are not

taken into account, that cost figure will be artifically high.

Cost Per
Weighted Pupil

The higher costs associated with transporting certain types of pupils (handicapped, nonpublic) are taken into account by giving appropriate weights to the different types of pupils transported. For example, assume a handicapped pupil transported is weighted five times and a nonpublic pupil two times that of a regular pupil transported. These weightings would be applied to the different types of pupils, making cost comparisons among districts more valid then if pupils were unweighted. Pupil density and miles traveled are still not taken into account.

Cost Per
Mile

This measure takes the miles traveled into account, but does not show the effect of pupil density,or the number of pupils transported on cost comparison statistics. Two districts with the same density and cost per mile are not necessarily equally efficient. One district may transport more students, thus have a lower per pupil cost. Similarily, density may have an effect on the cost per mile which would not be reflected in the cost per mile statistic.

Cost Per Pupil
Bus Mile

This measure is defined - Cost divided by the product of the number of weighted pupils transported and the

number of bus miles travelled. This is the most accurate measure; it takes into account the number of pupil's transported, mileage driven and density. Using weighed pupil accounts for the types of pupils a district transports. The result gives the most accurate cost figures. An evaluation of a district's transportation operation should not be limited to an analysis of only certain measures of efficiency. Other factors, some subject to State decisions, some controllable by the local district, and some which are controllable by no one, also have to be considered. An evaluation which is not comprehensive in nature, and ignores some important factors, could lead to inaccurate conclusions concerning the efficiency of a district's transportation system.

CHARACTERISTICS OF LOW COST DISTRICTS

The Legislative Commission on Expenditure Review[1] in an attempt to explain why some districts have more efficient transportation operations than others, compared 120 districts with the lowest cost per pupil bus mile to the 165 with the highest costs per pupil bus mile. The analysis revealed the following facts: (1) Low cost districts transport an average of 21 times more pupils than do the high cost districts; (2) Low cost districts operate many more buses and drive many more miles than do high cost districts; (3) Low cost districts operate larger buses and transport more pupils per seat; and (4) Low cost districts operate in more densely populated

[1] Legislative Commission on Expenditure Review, State Pupil Transportation Programs, page 166.

school districts -- transporting an average of nine times more pupils per square mile than do the high cost districts.

CONTRACT VERSUS DISTRICT OWNED TRANSPORTATION SYSTEMS

There are many questions concerning the differences between contract systems and district owned systems. The following two are the most widely mentioned.

Are Districts which contract for transportation treated differently under the transportation aid provisions than school districts which own their buses?

The answer to this question is yes. Contract districts are favored under the transportation aid formula. Fringe benefits and the transportation supervisors salary are included under approved expenses for contract districts, and thus are aidable at the rate of 90 percent. They are not included under approved transportation expenses for districts which own their buses. Instead they are included under general operating expenditures and aided through the operating aid formula. The rate of reimbursement under that formula is much less than the 90 percent rate of the transportation formula. The result is that districts which own their buses, are reimbursed at a lower percentage of their total transportation expense than districts which contract for transportation.

Is one type of transportation system -- district owned or contract -- more efficient and less costly in its operation than another?

The answer to this question is inconclusive. The commonly held opinion is that contract systems are more expensive. That conclusion is not supported by fact nor can it be said that district owned systems are more expensive. From a random sample of 70 districts the costs per pupil were calculated for districts which transported all their pupils on contract buses and for districts which transported all their pupils on district buses. District owned expenses were adjusted to include fringe benefits, which were estimated as being equivalent to 30 percent of salaries. The resulting figures were $153 per pupil for contract districts and $150 per pupil for districts which own their buses. It appears that there is not much difference, but there are other factors which must be considered. These per pupil figures do not reflect the types of pupils transported. That could affect the cost figures.

Also, it must be remembered that contract districts and districts which own their buses are quite different in many respects. Contract districts are predominantly located in downstate suburban areas, while district owned systems are located in upstate suburban and rural areas. In addition, contract districts are smaller in area, and have higher enrollments and higher density than district owned systems. All these factors can have an effect on the per pupil cost.

The Legislative Commission on Expenditure Review attempted to answer the question of whether one type of system (contract v. district owned) was more cost efficient that the

other. They developed a matched sample of contract and district owned systems selected from three regions in the state; (1) Erie-Niagara Coutnies, (2) Suffolk County and, (3) Genessee-Livingston Counties. Districts were picked according to comparable size, topography, type of pupils transported and proximity to one another.

The Legislative Commission on Expenditure Review stated that a conclusion as to whether one system was cheaper than another could not be made based on the data. The Commission[1] suggested that pupil density and district management had a strong influence on the cost efficiency of a transportation operation.

FINDINGS

The New York State pupil transportation operation has an excellent safety record when compared to states with similar size programs. There are many factors which have an effect on the efficiency of a district's transportation operation. They can be classified as: Factors Subject to State Policy Decisions -- such as requirements for transporting pupils, Factors Subject to Local District Decisions -- such as bus purchasing and routing, and Non-Controllable Factors -- such as topography and pupil density. Some possible measures of efficiency are: Pupils Transported Per Bus Seat, Cost Per Pupil Transported, Cost Per Pupil (weighted) Transported, Cost Per Mile and Cost Per Pupil (weighted) Bus mile. The Cost Per

[1]Legislative Commission on Expenditure Review, State Pupil Transportation Programs, page 170-173.

Weighted Pupil Bus Mile will reflect the number and types of pupils transported and mileage driven and appears to be the best statistic to make cost efficiency comparisons. Low cost districts (Cost Per Pupil Bus Mile) transport more pupils, operate more buses, operate larger buses and operate in more densely populated districts than high cost districts. No solid conclusions can be made as to whether one mode of operation (Contract v. District Owned) is more expensive than the other or more efficient.

FIRST DRAFT

CHAPTER 5

ANALYSIS OF THE FINANCING OF NEW YORK'S PUPIL TRANSPORTATION PROGRAM

The analysis of the pupil transportation program presented so far in this report has been primarily focused on the procedures used by the State Education Department in distributing transportation aid. Some attention has been paid to the operation of the system in terms of safety and efficiency but a complete evaluation was not done. This was not the intent of this report.

This section deals with an analysis of the way pupil transportation is financed in New York State. Some subjects dealing with finance which were discussed briefly in previous sections are discussed in greater detail in this section. Before describing New York's present transportation aid formula, it might be helpful to review the literature dealing with transportation formulas, discuss the evolution of those formulas, and spell out the criteria by which a transportation aid formula should be judged.

LITERATURE REVIEW

In conducting a review of the literature certain criteria with regard to the formation of formulas are repeated over and over again.

Featherston and Culp[1] in Pupil Transportation cover all those criteria in their list of principles for financing pupil transportation:

(1) A formula should take into account factors which can cause a variation in the justification cost of the service.

(2) A formula should be as simple and accurate as possible.

(3) The factors in a formula should be unable to be controlled or manipulated by a local district.

(4) A formula should promote efficiency of operation on the part of the local unit.

These criteria and/or principles are mentioned by other authors also. Mort[2] said that it is necessary that a "measure (of need) be sufficiently objective to obviate local manipulation of the exercise of any large amount of discretion on the part of central authorities", and that the number of cost factors contained in a formula should be kept to a minimum. Arvid Burke[3] stated that a formula should not be based upon factors subject to local managerial control. Burke admitted it wasn't "possible to rule out managerial factors completely in establishing costs for purposes of state aid."

Beyond these general criteria, there has been a good deal said about the specific aspects of the transportation aid formula. The two questions which have been most frequently addressed concern the role of density in formulas and the determination of what the local share should be.

---

[1]Featherston and Culp. Pupil Transportation, Harper and Row, New York, 1965.

[2]Paul Mort. State Support For Public Education, American Council on Education, Washington, D.C., 1933.

[3]Arvid Burke. Financing Public Schools in the U.S. Harper and Brothers, New York 1957, page 410.

Much research has been done on the problem of density. In 1927 Burns[1] proposed using the log of density of school population as the independent variable because it was highly correlated with the transportation load. Johns[2] (1928) also favored the use of density (ADA per square mile) as the independent variable because it was the major factor in determining transportation need and the most important variable for predicting cost. Hutchins (1938) also concluded that density was an important factor. Henry[3] (1904) showed that there was an inverse relationship between pupils per square mile and costs per pupil. And Murray[4] in 1965 also said that there was in inverse relationship between density and per pupil cost.

Some research studies have confirmed that density is an important factor, but there is not complete agreement on this point. Lambert[5] in 1938 disagreed with Burns and Johns concerning the effect of density in predicting local transportation need and/or costs and today there is more general acceptance that density is not necessarily the only significant factor involving pupil transportation costs. Arvid Burke[6] said that the following factors affect the

---

[1]Robert Burns. Measure of the Need for Transporting Pupils, Columbia University, New York City, 1927.

[2]Roe Lyell Johns. State and Local Administration of School Transportation, Columbia, New York. 1928.

[3]Paul A. Henry. A Study of Factors Related To State Reimbursement of Pupil Transportation Costs in the 24 Local School Systems of Maryland, Unpublished Dissertation, 1964.

[4]John B. Murray. An Analysis of State Aid Plans for Financing Pupil Transportation, Unpublished Dissertation, Michigan State University, 1905.

[5]Asael C. Lambert. School Transportation, Stanford, California: Stanford U. Press, 1938.

[6]Arvid Burke. Financing Public Schools in the U.S., Harper and Brothers, New York, 1957.

validity of sparsity as an index of need: the location of school buildings, the number and size of those buildings, land use patterns, the nature of housing, and the way population is located along highways and topography.

In the debate over what the local share should be in transportation formulas two concepts, equalization and economy, are often discussed. The level of transportation aid over the last several years has risen to the point where many States reimbursed local districts a very high percentage of the cost, in many instances, 100 percent. The realization that transportation plays an important role in the provision of equal educational opportunity was the primary reason for the increased level of support. Now this trend is being reversed.

The procedure of reimbursing school districts a flat percentage of costs regardless of wealth is disequalizing. Each district has to pay the same percentage while their ability to pay differs.

If the reimbursement percentage is 100 then there is no problem with equalization. Mort, Ruesser and Polley[1] (1960) recommended just that (100 percent reimbursement) because transportation expenses are "required....before educationally effective expenditures begin." This brings up the problem of economy at the local district level. If the district is reimbursed a high percentage of cost, then the incentive to economize in their transportation operation is not as great as it would be if the local share were higher.

[1] Mort, Ruesser and Polley. Public School Finance, McGraw-Hill, New York 1960, page 267.

Johns[1] (1960) sums up the problems associated with the practice of state payment of a high percentage of costs by saying, "Such a procedure may reward uneconomical practice in some districts but its most serious defect arises from the fact that the less wealthy districts are in the least favorable position to meet the unreimbursed portion of the costs."

The literature now supports the idea that the percentage the State guarantees should not be so high as to discourage local incentives to economize. P. Henry[2] in his study in Maryland, proposed that the index for reimbursement be about 75 percent of total transportation costs. Arvid Burke[3] goes even further by suggesting that the state share for transportation "be the same percentage that the state pays of the basic level of support in the equalization program for current operations." Burke recommends that eventually, pupil transportation should be centrally operated by the State.

EVOLUTION OF TRANSPORTATION FORMULAS

The period of evolution of State transportation aid formulas (1930-present) has been characterized by an increasing level of State support as the idea that transportation plays

---

[1] R. Johns and E. Morphet. Financing the Public Schools, Prentice-Hall Inc., Englewood Cliffs, New Jersey, 1960.

[2] Paul A. Henry. A Study of Factors Related to State Reimbursement of Pupil Transportation Costs in the 24 Local School Systems of Maryland. Unpublished Dissertation, 1964.

[3] Arvid Burke. Financing Public Schools in the U.S., Harper and Brothers, New York 1957, page 625.

a vital role in guaranteeing equal educational opportunity has gained increasing acceptance. Also, some States have recognized the increased burden transportation costs have on poor districts and have distributed transportation aid on an equalization basis (in foundation programs).

State aid allowances for transportation in the early 1900's required heavy local effort. Distribution of aid was primarily by means of flat grants with the state contribution very small.[1] This began to change, and in the late 1920's the 17 states which aided transportation distributed that aid by other means than just a flat grant. Nine States paid a percentage of cost and only two used flat grants.[2]

In the early 1930's the move towards including transportation aid in foundation programs started. Half of the 30 States aiding transportation included that aid in foundation programs for equalization purposes. The remaining were equally divided between special purpose matching and special purpose flat grants.[3] By the end of the 1930's those figures remained unchanged, though by that time some States started using density as a factor in their formulas.

By 1950, all but eight states provided aid for transportation. The trend towards including aid in foundation programs slowed. Less than half the states distributed aid by this method, and more States used flat grants than foundation programs.[4]

---

[1]John Murray. Analysis of State Plans for Financing Pupil Transportation. Unpublished Dissertation, Michigan State University, 1965, page 30.

[2]Ibid, page 32.

[3]Ibid, page 50.

[4]Ibid, page 54.

The 1960's brought further changes in the methods employed to distribute transportation aid. All but six States aided transportation. The number of States using the foundation method decreased to the point where they made up less than 30 percent of the total. The number of States using flat grants also declined. States began reimbursing local districts for a certain percentage of transportation costs. Over 50 percent (23) of the States used this method and 36 percent of those reimbursed districts 100 percent of approved costs.[1]

Also, by this time formulas had become much more sophisticated by including many factors. Many States included density in their formulas. In addition; distance, number of pupils, bus miles and many other factors were being included in formulas. Computers were mainly responsible for this development since a large number of variables and a great mass of data could be handled.

Overall, the trend has been towards decreased use of foundation programs in distributing transportation aid and towards increased use of the percentage of cost method. The result has been higher levels of aid for transportation, but also less equalization.

PRESENT NEW YORK STATE FORMULA

New York State dispenses transportation aid according

[1]Chilton Cammer. Investigation of Methods of State Financial Support for Pupil Transportation in New York State. Dissertation, 1971, page 30.

to the following formula:

$$\text{Aid} = .90 \times (\text{ATE})$$

where ATE refers to a district's approved transportation expenditures.

The SED has the authority to determine what expenses are approved. For contract and public carrier transportation, the total home to school cost for transporting quota pupils is considered approved. Quota pupils are those pupils who live more than 1.5 miles from the school they attend, measured by the nearest available road to such school, or who live more than one mile from an approved route and also more than 1.5 miles from the school.

For district owned pupil transportation systems, approved expenses are the total home to school cost for transporting quota pupils minus: expenditures for transportation supervisors salaries, fringe benefits and transportation and garage equipment. Regardless of the mode of carrier (contract, public service or district owned) the costs of transporting handicapped pupils up to 50 miles one way to special services or programs designated by the board of education are approved expenses.

EVALUATION OF THE PRESENT FORMULA

Before evaluating the method New York State currently uses to finance pupil transportation, it is necessary to present the criteria by which a transportation formula should be evaluated. A transportation aid formula should:

(1) Require simple reporting procedures,

(2) Promote efficient and economical operations,

(3) Be reasonable in terms of the quantity of data required to be collected and the number of reports required to monitor the program,

(4) Be equitable and be equalizing in terms of the burden required to support pupil transportation and in terms of aid received,

(5) Not contain "formula driven" automatic cost increases,

(6) Be easily understood and simple to implement,

(7) Provide a mechanism by which the State can control the degree of its participation in support of pupil transportation costs,

(8) Take into account factors which can cause a variation in the justifiable cost of the service, and

(9) Be based on factors which cannot be controlled or manipulated by a local district.

Simplicity

A transportation aid formula should be easy to understand and simple in terms of what is required to carry it out. New York's formula is easy to understand. It is simply 90 percent of approved pupil transportation costs.

The process of determining approved costs is very complicated and time consuming in New York State's pupil transportation formula. It involves the collection of large amounts of data and the completion of many forms by the local district. In turn those forms have to be reviewed by the SED for accuracy. Then the SED makes several calculations to determine the approved expenses for each district.

Each district which applies for transportation aid must complete Form SA-120, Transportation Expenses worksheet. This form is 16 pages long and requires detailed information on the pupils transported, mileage traveled, buses and a great deal of information on expenditures. A high degree of detail is required concerning expenditures. For example, this form requires that expenditures for the following items be recorded: Automotive Parts, Gasoline, Oil-Lubricants-Antifreeze, and Tires and Chains. Such detail is necessary as long as the formula involves a procedure for determining approved pupil transportation costs.

Each district is also required to submit Transportation Routing Data Forms (SBM-14 SBM-15). These forms contain the following information for each bus route: seating

capacity, route mileage, quota and nonquota pupils transported, and allowable and nonallowable pupil miles.

From the information provided on these forms, the SED makes many calculations to determine the amounts to be deducted in order to arrive at the approved expense figure for each district. These deductions are non-resident pupils transported, nonallowable pupils miles, and bus capacity used for nonquota pupils.

It is obvious that a great deal of work is required at both the local and State level to determine approved pupil transportation expenses. Much data is collected and many calculations are made. The potential for error is great necessitating that forms be checked and rechecked. The time required to fill out these forms is also an important consideration. In compiling their transportation audit, Legislative Commission on Expenditure Review staff visited selected school districts and interviewed officials. The consensus of these officials was that the time and effort required to prepare the transportation routing data sheets was costly to the districts.[1] Though the formula itself is quite simple the procedures required to apply the formula are complex and time consuming.

Efficiency and Economy

The resources available to governments are not unlimited and therefore procedures should insure that all monies are

[1]Legislative Commission on Expenditure Review, State Pupil Transportation Programs, page 62.

wisely spent. State aid to any locality for any type of program must be dispensed in a manner which encourages the efficient and economical operation of that program. Such an incentive will act to benefit both the locality and the State. The program should be more economical and therefore decrease the cost not only to the State but also to the local taxpayers.

The New York transportation aid formula provides very little incentive for school districts to operate in an efficient and economical manner and therefore hold costs down. Some people contend that it provides no incentive at all, but that is not true. A formula which reimburses a district for 100 percent of its transportation cost is an example of a formula containing no incentives to economize. No matter what the cost of the program, the district bears none of the cost. That is not the case with New York's formula. The reimbursement rate is 90 percent of approved costs, so the district is responsible for 10 percent of approved costs plus those costs which are not approved. This provides some incentive for districts to hold down their approved costs.

Control on Costs

Any type of State aid formula should provide a mechanism by which the State can control the amount of money disbursed through that formula. The formula should not

contain provisions which automatically drive costs upward. A formula based on a certain percentile of spending will automatically require increased costs each year because of the effect of inflation.

New York's transportation formula is open ended. There is no limit on the amount of aid to be disbursed under the formula. Aid equals 90 percent of approved costs, and as long as approved costs increase, aid increases. It is clear that some sort of mechanism to limit aid is required in the formula. Otherwise, the cost to the State can rise greatly.

This glaring defect in the present formula was minimized somewhat during the 1976-77 Legislative Session. A law was passed which limited the increase in transportation aid a district could receive from one year to the next to seven percent. Though this represents improvement, it would be preferable to have the aid limiting factor built right into the formula.

Does the formula take into account the determinants of cost?

Any aid formula should take into account factors which can cause a variation in the justifiable cost of the service. In other words, the formula should be based on factors which determine the cost of a transportation program.

New York's transportation aid is based upon a set of factors and elements which are used to determine approved costs. Drivers salaries, supplies and materials (gas, parts,

oil, tires, chains) contractual expenses (heat, electric, water, telephone) and bus purchase expenditures are the elements which make up approved costs. The number of nonquota (less than 1.5 miles) pupils transported is taken into account. Deductions are made from approved costs for the purchase of bus capacity for nonquota pupils and for the transporting of nonquota pupils.

The approach New York State takes is very limited. Some factors which have an important effect on the cost of transporting pupils are nct taken into account. The formula is not concerned with the number and types of pupils transported nor is it concerned with the sparsity of a district. The formula states that all the costs associated with transproting quota pupils are approved and aidable at 90 percent.

Two similar districts (size, sparsity) may have the same approved costs, and therefore equal aid, but transport different numbers of pupils. The district with more pupils may be transporting those pupils in a more efficient manner while the other district, not being as concerned about costs (ex. a very rich district which requires a small tax effort to pay for transportation) spends more than is necessary to transport its pupils.

The aid a district receives should reflect the number and types of pupils that district transports. New York's aid formula does not dispense aid in such a manner. Also, sparsity is an important factor in determining transportation costs. Those factors should be taken into account in a

formula as it is in many States. New York's formula totally ignores those factors.

Is the formula based on factors which cannot be controlled or manipulated by the local district?

New York's formula requires school districts to report a great deal of information to the State Education Department. The Department does not presently have the resources required to verify the accuracy of the information it receives. The result is that it is quite easy for a school district to report incorrect information and secure higher State aid than it is entitled. Though that is a possibility, it is doubtful that many districts engage in such practices. Of more concern, is the practice of manipulating data to gain more State aid. Transportation aid in New York is based on factors which are easily manipulated by local districts.

One can see how this happens by analyzing two of the Education Department's deduction procedures. The capacity deduction procedure deducts from approved expenses the purchase price for the proportion of bus capacity used by nonquota pupils. Small changes in the numbers of pupils transported can result in large changes in deduction amounts. The incentive is for districts to make whatever changes are required to receive the most aid.

Similarily, the nonallowable pupil miles deduction procedure provides the same sort of incentive. Expenses

incurred for transporting nonquota pupils can be deducted from approved costs. Districts then plan their bus routes not for efficiency of operation, but to achieve the combination of quota and nonquota pupils which will maximize aid.

Regardless of the formula adopted, districts can report false information. The potential for this happening increases as the amount of information required increases.

New York's formula leads to the potential for manipulation (within the law) of the factors the formula is based on to obtain higher levels of aid. School district administrators admit this. This leads to planning bus routes to maximize aid[1] rather than to maximize efficiency of operations. The implications are serious. Transportation systems operate less efficiently than possible and higher amounts of State aid are required.

Is the formula Equitable?

It is absolutely essential that any school aid formula, whether it's for academic expenditures or transportation, be equitable. An equitable situation is defined as one in which similar districts are treated equally. Such is the case with education aid that is equalizing. Poor districts are given more aid than rich districts so that both types of districts would be equally burdened. If this weren't so, a poor district would have to tax itself at a higher rate than a rich district to provide the same transportation services.

---

[1] Legislative Commission on Expenditure Review, State Pupil Transportation Programs, page 62.

The question of equity can be looked at in several ways. Districts should be treated equally with regard to the tax effort they have to make to raise money for the local share of the transportation program. Regardless of wealth all districts should be able to support their transportation program with tax rates that are approximately equal.

Tax Rate Equity. This is not the case with New York's transportation aid formula. All districts have to pay for the 10 percent of approved costs which are not aided by the State. A very rich district would have to tax itself at a low rate to raise money for the 10 percent of nonaided expenses. A poor district, on the other hand, would be required to levy a much higher tax rate. There is a wide variation in the tax rates levied for pupil transportation in New York State as indicated in Table 5.1.

The highest tax rate in the State is close to 90 times greater than the lowest. The tax rate at the 90th percentile is over seven times the rate at the 10th percentile. The difference is not as great when comparing the 75th and 25th percentile levels, but it is still significant. The tax rate at the 75th percentile is close to three times the rate at the 25th percentile.

Such a wide variation exists because the poor districts have to tax themselves at higher rates than the rich districts to pay for the local share of transportation. This can be

TABLE 5.1

EQUALIZED FULL PROPERTY TAX RATE
TO PROVIDE LOCAL SHARE OF
PUPIL TRANSPORTATION COSTS, 1975-76

PERCENTILE VALUE (1)	TAX RATE IN DOLLARS PER $1,000 OF FULL PROPERTY VALUATION (2)
Highest	$6.14 (Mills)
90th	1.81
75th	1.19
50th (median)	0.73
25th	0.45
10th	0.25
Lowest	0.07

Note: The tax rates drop rapidly from the highest value, i.e. the 98th percentile value is $2.97. The table is read as follows: the tax rate at the 75th percentile to support the local share of pupil transportation costs is $1.19; the 50th percentile or median tax rate is $.73.

seen by looking at tax rates for the 1975-76 school year transportation program (aid for this year paid out in 1976-77) according to wealth.

As indicated in Table 5.2 for districts below the 10th percentile (in terms of wealth) the average tax rate was 1.71 mills compared to only 0.37 mills for districts above the 90th percentile. The poorer districts had to tax themselves at a rate almost five times that of the richer districts.

TABLE 5.2

TAX RATES TO PROVIDE LOCAL SHARE OF PUPIL TRANSPORTATION COSTS FOR DISTRICTS GROUPED ACCORDING TO WEALTH, 1975-76

DISTRICT WEALTH CLASSIFICATIONS (1)	MEDIAN TAX RATES IN DOLLARS PER $1,000 OF FULL PROPERTY VALUATION (2)
Above 90th Percentile	$0.37 (Mills)
Below 10th Percentile	1.71
Above 75th Percentile	0.40
Below 25th Percentile	1.46

When less extreme groups (in terms of wealth) of districts are compared, there still exists a large difference in tax rates. The tax rates for districts below the 25th percentile and above the 75th percentile were 1.46 and 0.40 mills respectively. Though the difference is not as great as with the below 10th percentile and above 90th percentile groups, it is still quite large. In this case the tax rate for the poor districts was almost 3.5 times the rate in the rich districts.

New York State's transportation aid formula creates an inequitable situation for taxpayers. Each district should be required to make the same tax effort to support its pupil transportation program. In New York, poor districts have to tax themselves at a rate three to five times higher than rich

districts to support their pupil transportation programs.

Aid Per Pupil Equity. This is a situation in which unequals should be treated unequally. That is, poor districts should receive more aid per pupil than rich districts. This will have the effect of equalizing the tax burden. A rich district would have a greater local share than a poor district, but both districts would be able to raise that local share with the same tax rates.

New York's transportation aid formula is not equalizing. It does not attempt to compensate for the tax inequities it creates by giving a greater share of aid to poor districts. Therefore, the tax inequity problem remains unresolved.

Per Pupil Expenditure Equity. This equity consideration is not as important when talking about transportation expenditures as it is with regard to academic expenditures.

The Expenditure level is considered a proxy for the quality of education in a district. More money will enable a district to purchase more educational inputs (books, teachers, staff), and higher quality inputs (teachers with advanced degrees), and to provide more educational programs. Though more money doesn't necessarily mean that the quality of an education is better, it is safe to assume that more money is better than less. It is important that a formula encourage per pupil expenditure (academic) equity because the expenditure level is considered an indication of quality and educational opportunity. This is not the case with transportation

expenditures. The level of expenditure is not necessarily a measure of the quality of a transportation operation. A high expenditure level may be an indication of an inefficient operation. In fact, the prime concern is that children get transported to school as safely and as cheaply as possible. Transportation should be provided in a safe, efficient, and economical manner.

This discussion is not meant to imply that transportation expenditure levels are unimportant. By analyzing low cost districts it may be possible to identify procedures and/or practices which contribute to the low cost of the operation. Similarly, by analyzing high cost districts it may be possible to identify factors which contribute to the high cost of the operation.

The principle of fiscal neutrality -- that the expenditures in a district should not be a function of the district's wealth appears to be violated with regard to transportation expenditures. Districts below the 10th percentile in wealth spend an average $114 per pupil for transportation compared to $130 for districts above the 90th percentile (See Table 5.3) But, as indicated earlier, differences in transportation expenditure levels do not necessarily mean that the quality of the programs differ. In light of this, the $16 difference in expenditures between the poor and rich districts is not really significant.

TABLE 5.3

PER PUPIL TRANSPORTATION EXPENDITURES
FOR DISTRICTS GROUPED ACCORDING TO WEALTH
1975-76

DISTRICT WEALTH CLASSIFICATIONS (1)	MEDIAN PUPIL TRANSPORTATION EXPENDITURE (PER PUPIL TRANSPORTED) (2)
Above 90th Percentile	$130
Below 10th Percentile	114
Above 75th Percentile	113
Below 25th Percentile	112

When evaluated in light of equity criteria, it appears that New York's transportation aid formula is less than satisfactory. An unreasonably heavy tax burden is presently borne by poor school districts in order to support pupil transportation. The State requires all districts to provide pupil transportation, yet its formula does not take into account differences in district's revenue raising capacities. Such an omission creates an unfair and inequitable situation.

FINDINGS

The following conclusions can be made concerning New York's transportation aid formula:

The formula itself is simple. The process required to determine approved costs is complicated and time consuming -- especially for the local school district. It involves the collection of large amounts of data and the completion of many forms. The potential for error is great.

The formula provides little incentive for a district to operate its transportation system in an efficient and economical manner. This is because the formula aids a flat percentage of costs (90 percent of approved costs).

The formula contains no mechanism by which the State can control its share of transportation costs. This defect was partially remedied when, in the 1976-77 Legislative session, a 7 percent limit was placed on the increase in aid a district could receive from one year to the next.

The formula does not take into account certain factors which are important determinants of the cost of a transportation operation, such as the number of pupils transported, the types of pupils transported (non-public, handicapped) and the sparsity of a district.

Because each district is required to report a great amount of information, incorrect data are often reported. Of more concern is the fact that the potential for manipulation of data by the districts is high. This is done in order to maximize aid, and can result in higher costs for the State as well as higher overall transportation costs.

The formula is not equitable. Poor and rich districts alike have to pay the 10 percent of approved costs

not aided by the State plus any other transportation costs. This puts an unfair burden on poor compared to rich districts.

FIRST DRAFT

CHAPTER 6

A PROPOSAL FOR CHANGING THE PUPIL TRANSPORTATION FORMULA

The aim of this study was to propose a transportation aid formula which would be simple, easy to administer, and equitable. The present formula is highly complex and disequalizing in nature and does not fulfill these criteria.

There are many ways that the State can disburse funds for pupil transportation programs. Before describing several alternatives for financing pupil transportation, the goals to be achieved through a State aid proposal are as follows:

1. Simplify not complicate reporting procedures.
2. Promote efficient and economical operations.
3. Reduce the quantity of data to be collected and the number of reports required to monitor the program.
4. Result in greater equalization of the burden to support pupil transportation.
5. Eliminate "formula driven" automatic cost increases.
6. Be easily understood and simple to implement.
7. Provide a mechanism by which the State can control the degree of its participation in support of pupil transportation costs.

8. Result in a formula that takes into account factors which can cause a variation in the justifiable cost of the service.
9. Reduce the potential for the manipulation of data for aid purposes.

Various analyses were undertaken and different approaches tried in attempting to develop a formula. In the next section, four alternative proposals are described and their effects evaluated in light of the above criteria.

TRANSPORTATION FORMULA ALTERNATIVES

Alternative #1
"Predicted Cost Formula"

Alternative #1 utilized a linear regression formula. Numerous factors were correlated with Total Pupil Transportation Costs. Those factors were selected which best predicted pupil transportation costs. Although some 16 different measures were tested, in the interest of simplicity only the following factors were used: (1) total number of pupils transported; (2) the number of schools to which the pupils were transported; (3) sparsity, i.e. the pupils transported per square mile. These measures were combined into an appropriately weighted regression formula and the predicted pupil transportation costs for each district computed. The State then could elect to pay a set percentage of the predicted transportation costs.

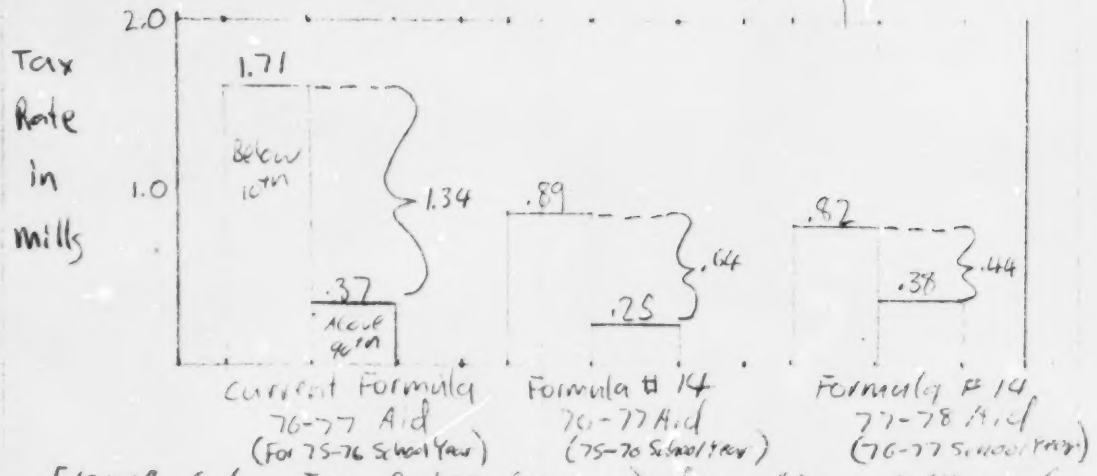


Figure 6.1 Tax Rates (means) for Above 90th and Below 10th Percentile Groups (By wealth)

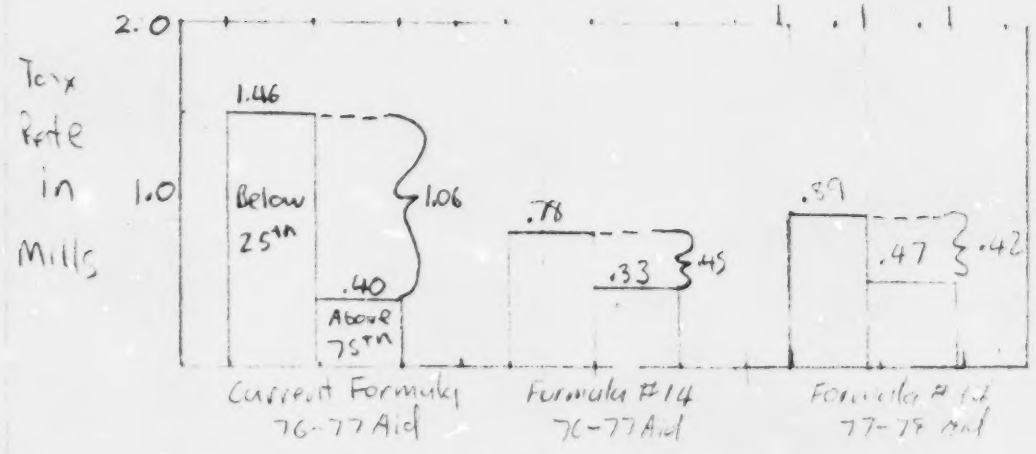


Figure 6.2 Tax Rates (means) for Above 75th and Below 25 Percentile Groups (By wealth)

Formula Evaluation. The Alternative #1 linear regression formula approach produced large variations or percent errors in predicting pupil transportation costs. Also, the predicted cost approach results in costs that are much higher or lower than the actual cost. To aid a district on "unreal" costs would be hard to justify. As important, however, is the fact that the method involved complex, statistical procedures which most persons would not understand. Being a complex rather than a simple procedure would cast an aura of uncertainty over the results. The formula would result in paperwork simplification and a reduction of data needed to monitor the pupil transportation program. The State's participation could be limited by the percentage of predicted costs it would be willing to support. In addition, the formula would be based on factors directly affecting transportation costs.

Alternative #2
"Single Tier,
Aid Ratio Formula"

A second approach used to disburse State funds for pupil transportation involved an aid ratio formula. The parameters used in the formula were: (1) total pupils transported; (2) the cost per pupil transported (at the 65th percentile); (3) sparsity correction; (4) wealth(full value per pupil for both public and nonpublic enrollments), and (5) total pupil transportation costs (including the cost of fringe benefits such as pensions, social security, etc.).

The aid a district received was computed by multiplying the total number of pupils transported times the cost per pupil transported at the 65th percentile, adjusted for a district's sparsity, times its aid ratio.

Formula Evaluation. The Alternative #2 single tier aid ratio formula contained variations as percentage errors from actual State aid paid out. However, the deviations were not as large as in the linear regression formula approach. The aid ratio formula is easier to understand than the linear regression formula. Both formulas would greatly reduce the data the State would require to monitor the program. Therefore, paperwork would be simplified and reduced greatly. Problems arise from the fact that differences in costs for transporting handicapped or nonpublic school pupils have not been taken into account. Some districts which expend below the 65th percentile would probably have some incentives to increase costs since State aid would be greater than under the present formula. Yet, the incentives to increase costs would not be as great under the aid ratio formula compared to the present 90 percent of all approved transportation costs.

Alternative #3
"Simple Aid
Ratio Formula"

State aid would be distributed on the basis of an aid ratio times total pupil transportation costs. The aid ratio would be limited to a maximum of 90 percent of total pupil transportation costs and a minimum of 50 percent. The

local share factor would be 51 percent. A formula of this type was actually passed by the legislature but later repealed.

A variation of this formula would be to use approved pupil transportation costs rather than total costs and a local share factor of 25 percent rather than 51 percent. A formula of this type was recently suggested by the Governor.

Formula Evaluation. The Alternative #3 formulas are basically the same except for the parameters actually used. If total costs rather than approved transportation costs are used, the paperwork is substantially reduced. If a high local share factor is used (51 percent compared to 25 percent) the local districts as a whole would support most of the pupil transportation program. This should act as a deterrent to rapid increases in State aid for pupil transportation. The disadvantage would be that too many districts would experience cuts in State aid. On the other hand, a large local share factor results in too many districts experiencing increases in State aid with the result that State aid would be escalated. Although the aid ratio formula approach provides for no limits on expenditures for pupil transportation, in reality the State can limit it's participation by reducing its aid sharing ratio. Again, a disadvantage is that differences in costs for transporting handicapped or nonpublic school pupils have not been taken into account. (For Projections under this alternative, See Table T.1 in Appendix B.)

Alternative #4
"Two Tier Aid
Ratio Formula"

A fourth alternative to funding the State's pupil transportation program involved a two level approach. The first level could be likened to the present formula except that a lid is placed on costs per pupil transported. The second level involves an aid ratio formula but only on the excess cost expended above the first level's ceiling. Also, wealth would be computed in the same manner as is the wealth in the Regents Proposed Current Operating Aid formula.

Formula Evaluation. The Alternative #4 two tiered formula is easy to understand. The formula calls for a limited amount of pupil transportation data. Thus, the formula would result in simplification of paperwork and in a large reduction of pupil transportation data collected. The formula does not automatically increase pupil transportation costs to the State since the percentage aid tier can be reduced from its proposed 95 percent to a lower figure or the $90 figure need not be changed each year as pupil transportation expenses increase. Also for districts which expend above the $90 per pupil transported, the additional cost is State aided in accordance with the wealth of the school district from a low of 40 percent to a high of 80 percent. These changes would have the effect of shifting some of the burden of support for additional costs upon the local districts rather than the State.

TOTAL AID = 1st TIER AID + 2nd TIER AID

1st TIER AID = (.95 x $90 x TAP)

or whichever is less

(.95 x C x TAP)

2nd TIER AID = (C - $90) x TAP x AR

Note:

AR = Aid Ratio which equals 1-(.40 Wd/Ws) where Wd = district wealth and Ws = State average wealth. Wealth is two years previous to aid year. The aid ratio is limited so that it cannot go below .4 or above .8.

TAP= Total Aidable Pupils which equals
[(1 x P) + (2 x NP) + (6 x H) - (.75NA)]
P = Public Pupils Transported
NP= Nonpublic Pupils Transported
H = Handicapped Pupils Transported
NA= Nonallowed Pupils Transported

C = Cost Per Pupil which equals Total Transportation Costs divided by Pupil Transported. Pupil Transported equals [(1 x P) + (2 x NP) + (6 x H)]

The following sections contain a more complete explanation and evaluation of Alternative #4 and aid projections.

COMPARATIVE ANALYSES OF VARIOUS TRANSPORTATION FORMULAS

Of all the alternatives presented, the two-tier aid ratio formula was most deserving of further investigation. It is unique in that the costs associated with transporting different types of students are taken into account. This is done by means of weightings: 1 for public pupils, 2 for non-public pupils, 6 for handicapped, and .25 for nonallowed. (Subtracting .75 for each nonallowed from the weighted sum of public, nonpublic and handicapped has the effect of weighting nonallowed at .25 because nonallowed are included in the public, nonpublic categories).

It is more expensive to transport nonpublic students than regular students. This is because nonpublic students must be transported to schools other than the public schools, a factor which is highly related to costs. Also buses transporting nonpublic students may be operating under full capacity. The cost for transporting severely handicappped pupils is much higher than the cost for transporting normal children. The capacity of buses used to transport severely handicapped pupils is much lower than that needed in buses to transport normal pupils. Also, the handicapped require

more supervision. P. Henry[1], in his Maryland study, discovered that it cost $39.70 to transport regular pupils compared to $167.45 for handicapped students, and he recommended that handicapped students be reimbursed up to five times the reimbursement level for regular pupils. The Transportation Advisory Committee in the New York State Department of Education felt that a cost weighting of five was too low. The Committee requested that handicapped pupils be weighted at six until accurate cost information for New York State could be developed.

Subsequently, cost data for New York State on handicapped pupils transported as a result of court order was obtained. Based on this information it was estimated that it cost somewhere between five and seven times more to transport a handicapped pupil than it did to transport a regular pupil. Therefore, a weighting of six appears appropriate. (See Appendix A)

The nonallowed pupils transported were given a weight of .25 for aid disbursement because in some instances districts transport some of these students for safety reasons rather than for student convenience.

Formula
Aid Projections

Table T.2 (See Appendix B) contains a series of aid projections for 1976-77 for 11 formulas which are all variations on Alternative #4. Some formulas include sparsity adjustments and different pupil measures. Different cost figures were

[1] P. Henry. A Study of Factors Related to State Reimbursement of Pupil Transportation Costs in the 24 Local School Systems of Maryland, unpublished Dissertation, 1904.

used to determine per pupil costs in the various formula runs. The specific characteristics are described for each formula on the sheets attached to Table T.2.

Aid projections using the various formulas ranged from a low of 271.5 million to a high of $304.2 million. These figures represented increases over actual 1976-77 aid of $17.3 million and $50.0 million respectively.

Formula #14 is a variation of Alternative #4. Not only were the same pupil measures used, but, in addition, sparsity adjustments were made. As indicated in Table T.2, the projected aid for Formula #14 is $272.3 million, an increase of $18.1 million over the actual aid distributed in 1976-77.

Table T.3 (Appendix B) contains aid projections for 1977-78. Aid figures ranged from a low of $273.5 million to a high of $306.9 million. These figures represented increases over actual 1977-78 aid of $1.4 million and $88.8 million respectively.

Table T.4 (Appendix B) indicates what changes in aid to local districts would take place under these formulas from 1976-77 to 1977-78. The change ranges from a decrease of 1 percent to an increase of 19 percent. The aid for Formula #14 would increase a total of $10.2 million, a 4 percent jump.

Formula #14 was chosen as the best among the Two-Tier Aid Ratio formulas presented in Table T.2 (See Appendix B) for the following reasons:

(1) It includes an adjustment for sparsity.

(2) It is based on total costs and therefore does not require the complicated paperwork which is involved in determining approved costs.

(3) The total cost is less than all other formulas based on total costs with the exception of #12 (which is the same as #14 except it doesn't include an adjustment for sparsity)

(4) The pupil unit (Pupils Transported) used to determine the cost per pupil weights nonallowed pupils at 1 instead of .25 or 0 like the other formulas do. Pupils Transported includes all nonallowed in order to obtain accurate per pupil cost figures. Total transportation costs include costs associated with transporting nonallowed pupils so they should be included. Also, if they were not included, districts transporting large numbers of nonallowed would have artifically high per pupil costs resulting in higher levels of aid.

In order to adequately assess the impact of Formula #14, the following variables were calculated for all the districts in the State: (1) Total aid under Formula #14, (2) Aid Per Pupil, (3) Index of Change in Aid (From actual 76-77 aid), (4) Tax rate required to pay for districts share of transportation cots, and (5) Total Cost Per Pupil. In addition, other information, such as wealth, was recorded for each district.

When the aid for all 700 school districts was summed up the total amount came to $252,420,052 which is approximately $20 million, or 8 percent less than the projected amount ($272.3). Therefore, the projected aid for 1977-78 also might be a little high.

Formula #14 was evaluated in accordance with the goals for a State aid pupil transportation proposal which were

stated at the beginning of this chapter.

Is the Formula Simple?

Formula #14 is based on total rather than approved costs which would result in the simplification of forms to be filled out. In order to determine approved costs under the present law, each district must fillout the 16 page SA-120 Form in addition to Transportation Data Routing Forms. Formula #14 would require much less. The quantity required would be less, resulting in fewer forms and reports. Overall, because the formula is based on total rather than approved costs, it would be more easily understood by district personnel and would require less work on their part.

Will it promote efficient and economical operation?

The fact that a district receives aid in the amount of 90 percent of Approved Costs (Current Formula) provides very little incentive for that district to operate its transportation program in an economic and efficient manner. Formula #14 provides greater incentives. Costs in excess of $90 per pupil are aided by means of an aid ratio which cannot exceed 80 percent, but can go as low as 40 percent. So, at costs above $90 per pupil, it makes sense for a district to operate as efficiently as possible.

Does it contain
"Formula Driven"
Automatic Cost Increases?

Initial analysis indicated that Formula #14 does not appear to have formula driven automatic cost increases. Keeping the first tier aidable cost at $90 per pupil while actual costs increase due to inflation will have the effect of reducing the proportion of costs the State aids. In contrast, basing first tier aid on a cost figure at a certain percentile would automatically increase the amount the State pays for pupil transportation each year. Aid projections (based on a 70 district sample) increased by only 4 percent from 1976-77 to 1977-78. Subsequent calculations using all 700 districts showed that the projection for 1976-77 was $20 million too high. If the projection for 1977-78 is accurate, that would mean an increase in aid of 12 percent from 1976-77. But it is likely that that projection is also too high, and therefore, the increase would be less than 12 percent.

Does the formula provide
a mechanism by which the
State can control the degree
of its participation in sup-
port of pupil transportation
costs?

The most attractive characteristic of the two tiered pupil transportation formula that has been discussed is that there are several mechanisms by which the State can control its share of the costs for pupil transportation. The cost figure for first tier aid can be changed. The local share

figure within the aid ratio can be adjusted, and once the aid ratio is calcu ted limits can be put on the values it is allowed to take. Finally, the State can place limits on the change in aid a District can experience from one year to the next.

Does the formula take into account factors which can cause a variation in the justifiable cost of the service?

As pointed out in the section entitled "Two Tier Aid Ratio Formula," the costs associated with transporting different types of students are taken into account with this type of formula. The number and types of pupils transported have a direct bearing on the total cost. Under this type of formula, a district which transports high cost students (nonpublic, handicapped) will be aided accordingly.

Does the formula reduce the potential for the manipulation of data for aid purposes.

The current formula provides ample opportunity for a district to manipulate data in order to gain higher levels of aid. The capacity deduction procedure and nonallowable pupil mile deduction procedure described in Chapter 3 are examples where this can happen. Formula #14 does not provide such an opportunity.

Does the formula result in greater equalization of the burden to support pupil transportation?

The answer to this question is yes. The current formula creates a highly inequitable situation. Generally, poor districts are required to levy much higher tax rates than rich districts. This is because the formula makes no attempt to equalize the tax burden. All districts must pay the 10 percent of approved costs which are not aidable by the State. Before discussing wealth related inequities in greater detail, it might prove helpful to analyze the tax rate (transportation) distributions under the current formula.

Analysis by Tax Rate Distributions. The tax rate distributions for transportation under the current formula and Formula #14 are presented in Table 6.1. The tax rates under the current formula are all higher than those of Formula #14. This is because Formula #14 tax rates took into account aid districts received under general operating aid for transportation fringe benefits while that was not done for current formula tax rates.

The tax rate distribution under Formula #14 represents a slight improvement over the current formula distribution. The difference between the highest and lowest tax rate is 5.33 mills for Formula #14 compared to 6.07 mills for the current formula. The tax rate differences between all percentile levels are lower under Formula #14 than the current

TABLE 6.1

TRANSPORTATION TAX RATE DISTRIBUTION
1976-77 AID
(FOR 1975-76 SCHOOL YEAR)

(1)	CURRENT FORMULA TAX RATE (MILLS) (2)	FORMULA #14 TAX RATE (MILLS) (3)
Highest	6.14	5.33
90th Percentile	1.81	1.01
75th Percentile	1.19	.66
Median	.73	.41
25th Percentile	.45	.25
10th Percentile	.25	.11
Lowest	.07	0

formula. The differences between the 90th and 10th percentile levels are 1.56 mills for the current formula and 0.90 mills for formula #14. The same figures for 75th -- 25th percentile differences are 0.74 and 0.41 mills respectively.

Table 6.2 presents some statistics for districts in certain tax rate percentile groupings under Formula #14.

High tax rate districts are much poorer and spend 40 percent more per pupil than low tax rate districts. In order to be equalizing, the formula should reward the high tax rate districts to a much greater extent that the low tax rate districts. The aid per pupil is higher for high tax rate

TABLE 6.2

STATISTICS FOR DISTRICTS ORDERED BY TAX RATE
USING FORMULA #14 (TWO-TIER RATIO FORMULA) 1976-77
AID (FOR 1975-76 SCHOOL YEAR)

Variable (1)	ABOVE 90th PERCENTILE (2)	BELOW 10th PERCENTILE (3)	ABOVE 75th PERCENTILE (4)	BELOW 25th PERCENTILE (5)
1974 Wealth	$27,217	$80,502	$31,075	$67,912
Cost Per Pupil	$154	$110	$153	$109
Index of Change No Limits	1.41	1.05	1.30	1.09
Index of Change ±10 Percent Aid Change Limit	1.08	1.02	1.07	1.03
Pupil Count	1236	1595	1833	2256
Aid Per Pupil	$107	$95	$117	$94
Tax Rate (Mills)	1.59	.06	1.12	.13

districts. The aid per pupil for districts above the 90th percentile is 13 percent higher than the aid per pupil for districts below the 10th percentile. For districts above the 75th percentile the aid per pupil is 24 percent higher than the aid per pupil for districts under the 25th percentile. Because there are such great differences in the tax rates between these groups, a truly equalizing formula should provide much more aid to high tax rate districts than to the low tax rate districts.

With this formula the difference in aid between high and low tax rate districts is not that great because the change in aid (from Current Formula 1976-77 aid) a district can experience is limited to 10 percent. Under that condition districts above the 90th percentile experience an 8 percent increase in aid compared to a 2 percent increase for districts below the 10th percentile.

When the limit on change in aid is not imposed the increases for the two groups mentioned above are 41 percent and 5 percent respectively. So, if the formula were to operate without any limits it is apparent that the aid differential between low and high tax rate districts would be much greater, as it should be.

Analysis by Wealth Distributions. Districts were grouped by 1974 wealth and various statistics calculated. These are presented in Table 6.3.

As indicated in Table 6.3, low wealth districts have much higher tax rates than the high wealth districts. This is consistent with the finding in the previous section that high tax rate districts are low in wealth. There is not much of a difference in the aid per pupil received by rich and poor districts. This is explained by the condition that change in aid be limited to 10 percent. With that in effect the rich districts experience no increase in aid while the poor districts gain between 8 percent and 9 percent.

With no aid change limitation, the poor districts' aid increases from 25 percent to 28 percent it increases

TABLE 6.3

STATISTICS FOR DISTRICTS ORDERED BY
1974 WEALTH USING FORMULA #14 (TWO TIER AID RATIO FORMULA)
1976-77 AID (FOR 1975-76 SCHOOL YEAR)

VARIABLE (1)	DISTRICT ABOVE 90th PERCENTILE (2)	BELOW 10th PERCENTILE (3)	ABOVE 75th PERCENTILE (4)	BELOW 25th PERCENTILE (5)
1974 Wealth	$144,200	$16,878	$98,592	$20,267
Cost Per Pupil	$129	$124	$132	$127
Index of Change No Limits	1.05	1.25	1.03	1.28
Index of Change ±10 Percent Aid Change Limit	1.01	1.08	.99	1.09
Pupil Count	1268	1482	2028	1710
Aid Per Pupil	$101	$103	$105	$102
Tax Rate (Mills)	.25	.89	.33	.78

only from 3 percent to 5 percent for rich districts. Under these circumstances it is likely that the poor districts would receive considerably more aid per pupil than the rich districts

If this formula is to achieve its goal of achieving greater equalization of the tax burden then the differences in tax rates between rich and poor districts should be reduced.

Figures 6.1 and 6.2 compared tax rates for the districts above the 90th percentile (wealth) with those below the 10th percentile and the districts above the 75th percentile with

those below the 25th percentile using the current formula and the first two years of Formula #14.

As can be seen the difference in tax rates between the high and low wealth districts under the current formula is considerably reduced when Formula #14 is used. The differences in tax rates between districts above the 90th percentile and below the 10th percentile, and between districts above the 75th percentile and below the 25th percentile were both reduced over 50 percent. That gap is further reduced from the first to second year of Formula #14's operation. The drop is more dramatic between the above 90th and below 10th percentile groups than it is between the above 75th and below 25th percentile groups, where the decrease is rather slight.

So it appears that Formula #14 has an equalizing effect on tax rates local school districts have to levy to support their pupil transportation programs. The differences between the tax rates of rich and poor districts is not as great with Formula #14 as it is using the current formula.

The Question of Sparsity

It costs much more to transport a pupil in a sparse district than a dense district because those students have to be transported over longer distances. Districts below the 10th percentile in sparsity spent over twice as much per pupil as did districts above the 90th percentile -- $192 to $88.

Both groups have approximately equal wealth, but because of the cost differences, sparse districts tax themselves at a rate approximately twice that of dense districts -- .74 mills to .36 mills.

By making an adjustment for sparsity the formula is designed to alleviate the unfair tax burden imposed on the sparse districts. Under formula #14 sparse districts do receive almost twice as much aid as dense districts, but aid as a percentage of total cost is less for sparse districts than it is for dense districts.

If the change in aid a district is allowed to experience was unlimited, sparse districts would be treated more favorably in terms of aid. Their aid would increase 26 percent compared to 12 percent for the dense districts. With the ± 10 percent aid change limit imposed the aid increase for sparse and dense districts are 6 percent and 2 percent respectively.

Sparse districts are favored under the formula as intended, but not to a great extent. They still have to tax themselves at over twice the rate of dense districts. Further improvements are needed in the formula to overcome this undesirable aspect.

An Analysis of
Gainers and Losers

Statistics were calculated for the 10 percent of districts which gained the most aid and the 10 percent which

lost the most aid. The average change in aid (when no limit is imposed) was +69 percent for the gainers and -19 percent for the losers. When the ±10 percent aid change limit is imposed those figures are +10 percent and -10 percent.

The districts which lose aid are above the 90th percentile ($94,297) in wealth, and almost three times as wealthy as the gainers which have median wealth ($36,237). The tax rate required of the gainers is quite high, 1.15 mills, which is above the 90th percentile. The tax rate of the losers is .39 mills, slightly below the median tax rate.

It appears that the design of the formula is sound. Districts which gain a lot of aid are much lower in wealth than those districts which lose aid. Putting a ± 10 percent limit on change in aid lessens the impact of the beneficial effects of the formula. The purpose here is to phase in the formula over several years rather than in one year.

FINDINGS

There is a great need for reform of the current New York State transportation aid formula. That formula is highly complex, disequalizing in nature, and does not promote the efficient and economical operation of pupil transportation systems.

Of all the formulas presented, the two tier aid ratio formula is the best alternative because it fulfills the criteria for a transportation formula spelled out at the

beginning of this chapter.

Of the two tier formula variation discussed, Formula #14 is the best because:

a. It includes an adjustment for sparsity.

b. It is reasonable in terms of cost.

c. It is based on total costs -- which is much simpler than using approved costs.

d. It uses per pupil cost figures which accurately reflect the actual cost.

The following conclusions can be made about Formula #14:

a. It is easy to understand and simple to operate.

b. It will encourage the efficient and economical operation of pupil transportation systems.

c. It does not contain formula driven automatic cost increases.

d. The formula contains mechanisms by which the State can control its share of the costs.

e. It is based on factors which can cause a variation in the justifiable cost of the service.

f. It results in greater equalization of the burden to support pupil transportation.

The $\pm$10 percent change limitation feature protects districts from the negative effects associated with drastic cuts in aid. But, it also lessens the impact of some of the beneficial effects of the formula.

RECOMMENDATIONS

All costs associated with transporting pupils to and from school should be recorded under transportation. This includes fringe benefits and transportation supervisors salaries which are not presently recorded under transportation. If that cannot be done, transportation costs recorded under other areas should be identifiable as transportation costs.

Transportation costs for activities whose purpose is not to transport pupils to and from school should be recorded under that activity, and not under pupil transportation as they presently are. For example, the transportation costs associated with field trips and other instructional activities should be recorded under instruction and not under transportation.

Institution of a program budgeting system as described above would make the provision of aid more equitable and would facilitate future analyses and evaluations of New York's pupil transportation program.

The present New York State transportation aid formula should be replaced with the following two tier aid ratio formula:

TOTAL AID = 1st TIER AID + 2nd TIER AID

1st TIER AID = (.95 x $90 x TAP)

or whichever is less

(.95 x C x TAP)

2nd TIER AID = (C - $90) x TAP x AR

Note:

AR = Aid Ratio which equals 1-(.40 Wd/Ws) where Wd = district wealth and Ws = State average wealth. Wealth is two years previous to aid year. The aid ratio is limited so that it cannot go below .4 or above .8.

TAP = Total Aidable Pupils which equals
[(1 x P) + (2 x NP) + (6 x H) - (.75NA)]
P = Public Pupils Transported
NP = Nonpublic Pupils Transported
H = Handicapped Pupils Transported
NA = Nonallowed Pupils Transported

C = Cost Per Pupil which equals Total Transportation Costs divided by Pupil Transported. Pupil Transported equals [(1 x P) + (2 x NP) + (6 x H)]

Sparsity = All districts below median sparsity (33 pupils transported per square mile) received an adjustment to their per pupil cost of an amount between + $2 and + $10.

If conditions preclude the enactment of a two tier aid ratio formula, the following changes in the present formula should be made:

a. Base aid on a percentage of total transportation costs (total costs determined according to recommendation #1) rather than approved costs. This would do away with a great deal of the paperwork which is required to determine approved costs. The reimbursement percentage should be low enough to keep the cost to the state within reasonable limits and to encourage economy on the district level.

b. If the above recommendations cannot be implemented the reimbursement percentage of approved costs should be reduced from its present level of 90 percent. A lower percentage will provide an incentive for the local districts to spend their money wisely.